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Georgia's Research Pulp and Paper Plant

An Idea Long Nurtured by Dr. Charles H. Herty, the Widely Known Chemist, Is Now Materializing at Savannah, Ga.—Representative Firms Contribute to the Success of the Project and Men Well Known in the Pulp and Paper Industry Will Be in Charge of the Plant Under Supervision of Dr. Herty

The current issue of the *Super-Calender* of the Pusey & Jones Corporation, Wilmington, Del., presents an interesting article on Georgia's new research pulp and paper plant which is reprinted herewith:

Many years of personal effort on the part of a native Georgian now an internationally known research chemist and industrial consultant, are being rewarded in the research pulp and paper plant now in course of erection at Savannah, Ga.

Reference is made to Dr. Charles H. Herty, recently appointed Research Chemist in charge of the Division of Pulp and Paper Research, newly created branch of the Department of Forestry and Geological development authorized by the 1931 session of the Georgia State Legislature.

Dr. Herty's Career

Dr. Herty is so well known even outside his own profession that a detailed account of his career is hardly necessary. His activities in both private and public work have embraced: Professor in Chemistry at the Universities of Georgia and North Carolina; Expert to U. S. Bureau of Forestry; Editor of the *Journal of Industrial and Engineering Chemistry;* Director of the American Chemical Society News Service; President of the Synthetic Organic Chemical Manufacturers' Association of the United States; Advisor to The Chemical Foundation, Inc.; Chairman of the Advisory Committee of the National Exposition of Chemical Industries, and Chairman of the Committee of the American Chemical Society on an Institute for Chemo-Medical Research.

He was advisor to the Chemical Warfare Service during the war; member of the Dye Advisory Committee of the Department of State, and in 1919 by special appointment of President Wilson, the representative of the United States in the matter of the distribution of German Dye Stuffs under the economic clauses of the Peace Treaty.

Announcement recently was made of the award to Dr. Herty of the medal of the American Institute of Chemists "for noteworthy and outstanding service to the science and profession of chemistry in America."

Long Advocated by Dr. Herty

Dr. Herty long believed in and advocated the development of a pulp and paper manufacturing industry in the South, utilizing as raw material the several species of pine that grow so prolifically in the Atlantic Gulf States from Georgia to Texas, and used in part only for lumber and naval stores. The remarkable development in the last few years of the Kraft paper industry in the South demonstrated the soundness of such logic and the possibilities in further development toward the manufacture of news print and white papers.

The fact that such papers had already in an experimental way, been made successfully by Dr. Herty and others resulted in an organized movement to prove out the commercial possibilities which, if successful, give promise of revolutionizing the paper industry.

Normal Development Held Back

Everyone is familiar with the fact that the Southern pines, due to environment, grow from three to five times as fast as spruce in the North. But until Dr. Herty made public the results from his research developments, there existed a general belief that they contained too much resinous matter to permit pulp manufacture, except in connection with the sulphate process. This erroneous impression naturally held back the normal development of the white paper industry in the South.

It is now a confirmed fact that even those species of pine from which is obtained the most turpentine and rosin (Naval Stores), standing in the woods up to say twenty-five years of age, do not contain any more resinous matter than the Northern spruce. Further, up until the age mentioned, when heartwood begins to form, it can just as readily be converted into pulp by either the sulphite or mechanical processes. In other words, by the selective use of young growth of pulp wood size, (4 to 10 inches diameter, 10 to 15 years old) and only slight modifications, if any, in the existing methods of conversion, it will be demonstrated that news print and white papers of commercial grade and quality can profitably be manufactured.

Made Possible by $50,000 Contribution

The creation of the plant was made possible first, by a donation of $50,000.00 for equipment obtained by Dr. Herty from the Chemical Foundation, Incorporated; second, by an appropriation from the Georgia State Legislature of $20,000.00 annually for the years 1932 and 1933

(Continued on page 49)

Port Alfred News Print Plant to Reopen

Consolidated Corporation Plans to Resume Production at This Mill on April 18 and to Gradually Close Belgo Plant at Shawinigan Falls—Although Idle for Some Time Past, Port Alfred Plant Has Been Maintained in Readiness for Operation

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 7, 1932.—L. J. Belnap, president of Consolidated Power and Paper Corporation, announces plans for re-opening the Port Alfred plant on April 18 and the gradual closing down of the Belgo mill at Shawinigan Falls. Since the Port Alfred mill was closed about a year ago it has been maintained in readiness for operation, but the corporation has adhered strictly to its policy of operating other economical units to capacity as a means of reducing their inventory of pulpwood. There is a huge supply of wood at Port Alfred.

For some months experts of the company have been occupied in calculating the amount of wood remaining at the Belgo Division of the Corporation and it is estimated that this will be consumed on or about May 28. Plans have been completed by the management for a gradual closing down of the activities at Shawinigan Falls so as to avoid any interruption in supplies of paper to the numerous newspapers that are served by the corporation in Canada, United States and all parts of the world, he states.

The Port Alfred Division of the corporation is an important unit, situated on seaboard at Port Alfred, Que., at the head of the Saguenay River, with splendid facilities for shipments by water as well as by rail, and it is planned to take advantage of these facilities to the utmost extent. The mill is equipped with four modern machines, each with a capacity of 125 tons per day of high quality news print paper. It also is equipped to manufacture and merchandise a considerable quantity of high grade sulphite pulp and a limited tonnage of boards suitable for building and packing purposes.

Eddy Co. in Another Forward Move

The E. B. Eddy Company, of Hull, Que., have begun work on the second stage of its rehabilitation program, and are spending a substantial amount on renovating the sulphite plant. The first stage in the program was completed recently. It consisted of the installation of a new water filtration plant. The company manufactures news print and numerous paper specialties.

Plans for Reopening Nashwaak Plant

Following the closing down of the Nashwaak Pulp and Paper Mill at Saint John, N. B., a committee of citizens was formed with the object of interesting capital and having the plant used for some purpose. The committee now reports that United States and Canadian capital is willing to operate the plant at full capacity if financial backing is given the project by the city. The committee points out that conditions in the paper market and wood prices make it possible for the plant to be operated on a paying basis in competition with similar plants and that, were the plant to be worked again, it would mean the distribution each year of a quarter million dollars in wages as well as taxes, etc. If the city would not get behind the project, the committee states that outside interests would be prepared to go ahead if private local financial support were assured.

Mayor White doubts if it would be good civic financing for the city to provide any financial assurance or guarantee bonds, and he doubted if the Legislature would approve any such action. So the matter stands at present.

New Records for Dalhousie Mill

The Dalhousie plant of the New Brunswick International Paper Company is functioning at high efficiency. On May 18 last year, production in news print for the day reached 585.2 tons and stood as a daily production peak until January 16, 1932, when 592 tons of news print were produced. Two days later, the new record was broken by the manufacture of 597 tons. Within another week, another record was established, when 604 tons of news print were produced in one day.

Details of Export

The following table gives the details of Canada's exports of news print in 1931 as compared with those for 1930. It will be seen that without exception all the principal markets took less news print last year.

	Tons	
	1931	1930
United Kingdom	104,027	134,639
Cuba	5,196	9,733
Jamaica	1,083	1,111
Argentina	44,295	82,285
Other Latin America	12,038	7,795
South Africa	14,744	15,964
Australia	29,502	45,096
New Zealand	14,673	21,670
All other	29,265	6,707
Overseas	254,823	325,000
To U. S. A.	1,753,414	2,006,011
Total	2,008,237	2,331,011

Wants Pulpwood Cut Curtailed

The Canadian Pulpwood Association, as a result of a resolution at the annual meeting, is petitioning the Provincial Governments of Quebec, Ontario, New Brunswick and Nova Scotia to curtail the cut of pulpwood by pulp and paper companies on Crown lands. The association embraces in its membership 13,000 pulpwood producers and dealers from Sydney, Cape Breton, in the east, to Port Arthur, Ont., in the west. The claim is that owing to restricted demand and unprecedentedly low prices, farmers and settlers are suffering great hardships, and that if cutting were restricted on Crownlands, farmers and settlers with pulpwood on their lands would have a market for pulpwood.

News Print Consumption in Canada

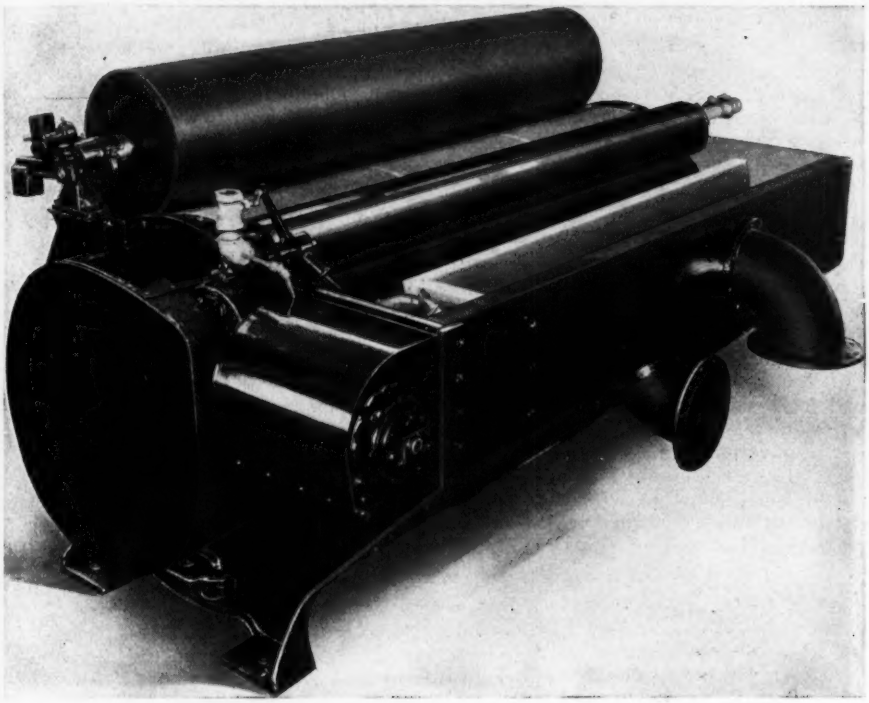
Consumption of news print in Canada in 1931 was 213,000 tons, as compared with 173,000 tons in 1930, and 218,000 tons in 1929, the latter the highest total ever recorded.

Japanese Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 9, 1932—News print production by Japanese mills during last year reported to have totaled 257,800 short tons as against 285,000 tons during 1930, a decrease of 27,000 tons or nearly 10 per cent. Imports during the same period show an increase from 21,000 to 37,000 tons or nearly 80 per cent.

EARNS



*

50 to 100% per year

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* *The new Bird Save-All, equipped with motor-drive —the simplest, most profitable means of turning white water into profit. Recovers the fibre, fits the water for re-use at a trifling cost for power and maintenance.*

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BIRD SAVE-ALL

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Wisconsin's Reforestation Program Discussed

Dr. Raphael Zon, Director of Lake States Federal Forest Experiment Station, Proposes Inclusion of Two Million Acres for Pulpwood—Urges State and County Forests—Gov. Philip F. LaFollette Promises Aid of State

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 7, 1932—A proposal that Wisconsin's reforestation program should include 2,000,000 acres for pulpwood was made by Dr. Raphael Zon, director of the Lake States Federal Forest Experiment station, in an address last week at the "Land Use Forum" conducted by the University of Wisconsin, at Madison, Wis.

Wisconsin has at best but 10,000,000 acres of land suitable for the forestry needs of the state, Dr. Zon said. He finds that the lumber industry is letting cutover lands become tax-delinquent and revert to the state, because it does not pay to hold them for the future. With the paper industry it is different, because the investment is for a shorter time. State and county forests are urged and it is suggested that Wisconsin adopt a definite program. Dr. Zon declares that two million acres of efficiently managed forests are worth more than sixteen million acres of poorly protected wild cut-over lands. The federal acreage in Wisconsin will total about 1,000,000 acres when the present purchase schedules are completed, and it is evident therefore that the government has in mind rapid expansion of its acreage. Governor Philip F. LaFollette promised the state would lend its aid to see that counties develop lands set aside for forests, instead of entering them under the forest crop law merely to obtain state subsidies.

Hoberg Paper Re-Elects Officers

All directors and officers of the Hoberg Paper and Fibre Company, Green Bay, Wis., were re-elected at the annual meeting of the company last week. J. M. Conway is president and general manager; Thomas R. Dee, Chicago, vice president; Frank T. Ramsay, vice president and treasurer; H. G. Wintgens, vice president and sales manager, and E. A. Clancy, secretary and assistant treasurer. Directors in addition are Dr. C. A. Albright and J. A. Auchter, Milwaukee; W. Y. C. Hunt, Chicago, and Dr. J. R. Minanah, C. R. Phenicie and William Hoberg, Green Bay. The company's annual report showed a general satisfactory condition for the past year, considering the times, and an expression of intentions to maintain the present volume of sales if possible.

Paul A. Smith Resigns

Announcement was made last week of the resignation of Paul A. Smith as vice president and general manager of the Combined Locks Paper Company, Appleton, Wis. Mr. Smith has not indicated what his future plans will be. Coming to the company's mills as boss machine tender in 1912, Mr. Smith was made superintendent in 1914. He became general manager five years ago. Since he became identified with the mill it has been modernized and a new 176-inch machine installed. It has been noted for its superior grade of catalog paper.

Safety Sessions Conclude

Safety schools at Green Bay and Neenah-Menasha, Wis., have concluded their activities for the season. Closing banquets were held last week in both cities, with James A. Gheen, of New York, as the speaker. At Green Bay, the attendance was 250, marking the sixth year of the safety school. J. M. Conway, president and general manager of the Hoberg Paper and Fibre Company presided, and expressed appreciation for the interest taken by paper mill workers and others in the promotion of a safety program. The Neenah-Menasha dinner had 225 present. Mr. Gheen chose as his subject, "Diamonds and Dust." He played up the need of making safety a goal to strive towards so that when men are stimulated to reach an objective they will make the necessary sacrifices to achieve it. The goal should be one it is possible to reach, he said, and employees must be taught to work continuously and faithfully towards it.

Wolf River Staff Changes

Reorganization of the official personnel of the Wolf River Paper and Fibre Company, Shawano, Wis., took place at the annual meeting. Arthur Humphrey was elected president to succeed his deceased father, F. W. Humphrey. E. J. Dempsey, of Oshkosh, Wis., is vice president, and Charles S. Naber, secretary and treasurer. Mr. Naber also was appointed general manager of the company. Robert H. Grade, Menasha, Wis., was elected to the board of directors. The other board member additional to the officers is R. A. Upham, Shawano. Although the company has had a difficult year, reports showed it to be in a strong position financially and with a good outlook for production.

Kimberly-Clark Worker Honored

Kimberly-Clark Corporation, Neenah, Wis., honored one of its employees, Will C. Bauer, upon the completion of fifty years of service. He was summoned to the offices where a group of directors, officers and department heads was gathered, and he was presented with a watch engraved with his record of service. The presentation was made by F. J. Sensenbrenner, president. Mr. Bauer is retiring on a pension. Only two others in the Kimberly-Clark organization had a record of such long service. They are J. A. Kimberly, founder and first president, now deceased, and Moses Hooper, the general attorney for the company through its sixty years of life. Mr. Hooper is now 95 years of age.

Printing Technical Experts to Meet

The third conference of the technical experts in the printing industry will be held on March 14-15, in the McGraw-Hill Building, 330 West 42nd Street, New York. Members of the Technical Association of the Pulp and Paper Industry and others interested are invited to attend.

Of particular interest to the paper manufacturers are the following papers:

"Humidity as it Affects Printing," by C. W. Davis.

"The Shoboscope," by D. R. Shoults.

"Newspaper Multi-Color Printing," by G. E. Pancoast.

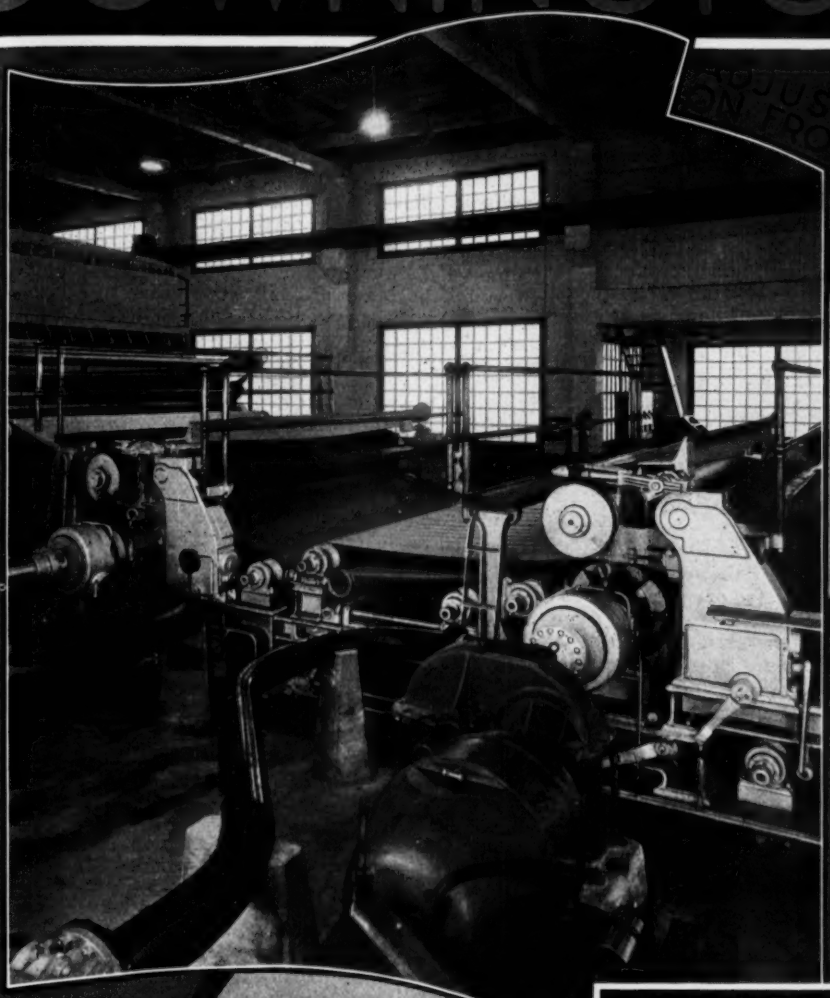
"Progress in Offset Printing," by Otto Trampusch.

"Standards on Paper," by Robert C. Fay.

"Condition of Paper as it Affects Printing," by W. G. MacNaughton, assisted by B. W. Scribner, Helen U. Kiely, B. L. Wehmhoff and W. R. Maull.

"What Can Science do for Practical Color Standards for Printing," by L. A. Jones.

DOWNINGTOWN



SUCTION ON REAR END

REAR END SUCTION

PHOTO shows Downingtown Suction Rolls at First and Second Press. These rolls are arranged with direct drive and rear end suction, while all adjustments to deckles, packing strips and suction box are made from the front side, while running. Rear End Suction simplifies vacuum piping, making it possible to run direct from roll to pump, without passing under machine to front side. It also makes it unnecessary to break any joints in vacuum piping when putting on clothing ▲ ▲ ▲ The Downingtown Mfg. Co., Downingtown, Pa.

Ontario Paper Mills Are Moderately Active

While Fine Paper Manufacturers Are Not Operating at Full Capacity, Volume of Production Is Fairly Satisfactory—Output of Bonds and Ledgers Slows Down — Coated Stock in Light Request—Tissue Specialties in Good Demand

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., March 7, 1932—With rigorous retrenchments taking place by Government and private organizations with a view to cutting down expenses to meet the depressed times, wholesale paper firms are operating under light sales, although in a few lines of paper the sales are about equalling in total those of a year ago at this time. Demand generally, however, is light, and the paper trade as a whole is suffering on a par with other commercial lines. What call there is confines itself chiefly to the low grade papers, which is an effect of curtailment of credit and contraction of business in a desire by printers and consumers of printing to keep their expenditures for stock down to a minimum. Commercial firms are scrutinizing every item of expenditure and if they can cut down on their paper account in the way of stationery and advertising they are going to do it. So they are turning to the use of the cheaper grades of paper.

Despite the fact that business is dull with the wholesaler, the fact remains that the manufacturing end of the industry is fairly active and some of the fine paper mills are having no difficulty placing satisfactory tonnages, considering the changed times. Of course few of the plants are operating at full capacity but there are book and litho paper manufacturing plants which are close to it and they are all doing a fair amount of business. There has been a slowing down of operations in manufacture of bonds and ledgers and coated stock is in light demand. On the other hand such lines as waxing, grease proof and glassine are moving fairly well, while tissue manufacturing plants are enjoying a steady business under a good demand for specialty lines and toilets. There has been very little improvement in the way of manufactured stationery and the paper converting trade is decidedly dull. The same may be said of the paper box industry and board manufacture. Board plants are running not much over fifty per cent capacity and the paper box makers report that things do not look any too promising for the Spring trade. There is very little output of boxes just now beyond the standard lines and the quantity of these ordered is considerably down from last year's records. There is quite a fair call for Canadian-made blanks and manilas and native blotting is also selling well.

Mills Buying Pulpwood From Settlers

A persistent effort is being made by pulp and paper mills to reduce inventories and cut down the amount of their bank loans. It was not so long ago that a supply of pulpwood sufficient to last from six months to one year was regarded as one of the unwritten laws of the industry. In some cases expenditures have had to be made fully two years in advance of the use of the wood in the manufacture of paper to cover the cost of logging operations long distances away from the site of the mills. During last fall and the present winter, many companies have followed a policy of using up supplies of pulpwood on hand at the mills, and thus saving considerable expense of sending crews out into the woods. Instead, pulpwood will be sought from settlers next spring to supply 1932-33 requirements. The announcement of the closing down of the Manitoba unit of Abitibi Power and Paper Company at Pine Falls is in line with this policy. Until a few months ago, Pine Falls was one of three units being operated by Abitibi out of six groups that came into the merger, Iroquois Falls being the largest. When the "Soo" mill of Spanish River was opened up partly to use up inventories of pulpwood, and partly to relieve unemployment, it seemed inevitable that if the highly efficient mill at Iroquois Falls were to continue operating at anything near capacity, the Manitoba mill would have to be closed.

Corrugated Paper Box Report Shows Loss

Corrugated Paper Box Company, Ltd., in its report for the year 1931, shows a loss, after depreciation of $45,481 and reserve for bad debts of $71,296, compared with a profit in 1930 of $86,711, after $44,480 depreciation. According to the annual report the loss last year was the direct result of the fall in prices due to intense competition and drastic price-cutting, and general business conditions were such that the amount of available tonnage showed no increase over the previous year. The balance brought forward from the previous year was $193,445. From this income tax of $7,085 was taken for 1930 operations, machinery and equipment written off was $8,491 and sundry adjustments $2,538, leaving a balance carried forward into the current year of $107,034. No dividends on either preferred or common stock were disbursed during the year.

B. C. Paper Mill Doing Well

The Ontario paper trade is interested in the progress being made by the Westminster Paper Company, New Westminster, B. C., which was originated by E. M. Herb, formerly of the Interlake Tissue Mills, Thorold, Ont. The company, it is stated, is operating a full shift continuously in its Westminster plant, and in the steady demand manifested for the products of the organization Mr. Herb sees a reflection of general improvement in Canada generally. In the past the company has experienced a period of two or three weeks slack time at this season of the year. This year, however, with the exception of three days in one week when operations were curtailed purely for mechanical reasons, the plant has been operating full time without a shut down. Credit for this happy state of affairs is given by Mr. Herb largely to the aggressive sales representatives both in Eastern and Western Canada. Export business is somewhat quiet just now but this is only a seasonal drop. Development in the domestic market is keeping the plant working full time.

TAPPI Delaware Valley Section to Meet

The next meeting of the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will be held on Thursday, March 17th at 6:30 p. m. at the Engineers Club in Philadelphia.

Raymond S. Hatch, technical director of the Pulp Bleaching Corporation and a past president of the Technical Association, will be one of the speakers, and Dr. Razek and Peter J. Mulder of the University of Pennsylvania, will give a practical demonstration of the Razek-Mulder color analyzer.

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Information will be furnished upon request.

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Federal Shipbuilding and Dry Dock Company
Illinois Steel Company
Minnesota Steel Company
National Tube Company
Oil Well Supply Company
The Lorain Steel Company
Tennessee Coal, Iron & R. R. Company
Universal Atlas Cement Company

Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif. *Export Distributors*—United States Steel Products Company, 30 Church Street, New York, N. Y.

Pennsylvania Paper Mills Broaden Operation

Production of Average Plant Increased From 10 to 20 Per Cent Over Earlier Weeks of Year—Improved Trend of Philadelphia Paper Market Well Maintained, With Further Expansion Confidently Anticipated As Spring Approaches

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 7, 1932.—With the improving paper market holding, the local paper industry is looking ahead to further expansion as Spring approaches. Though demand continues to be of small lot type for distributors, wholesalers report a growing volume of contracts for both fine paper and wrapping grades. Wrapping paper merchants report prices to be more steady, while fine paper dealers state there is still some cutting to secure large orders.

Manufacturers are holding operations to the broader scale of the last fortnight though future orders are coming slowly and are not of seasonal proportions. The average mill is now on an increased production of from 10 to 20 per cent over the earlier weeks of the year. Converters of paper products, such as corrugated and fiber containers, bag manufacturers, and those paper houses conducting roll and sheeting divisions, are all widening production as seasonal activity gains.

The bag market is steadier than for the past five years, with prices more firmly held than at any time in that period for both manufacturers and jobbers.

Paper Jobbers Association Appoints Committees

As the newly organized group of paper jobbers progresses in formation of its plans for trade stabilization, committees are appointed to promote various trade welfare programs. At a meeting of the Philadelphia Paper Jobbers Association, which comprises wrapping paper and bag dealers in its ranks, held at the Elks Club last Wednesday, Credit Interchange was proposed as an outstanding factor of the organization. Those on the committees are:— By-laws and Constitution, Chairman, Ben Kessler, Meyer Goldman, G. A. Bossler; Membership, Jack Zacher, Frank Dubin and Charles Resnick; Entertainment, Frank Dubin, John Basler, and B. Schwartz, while the following are on the Board of Control to hear all complaints—Elwood Basler, Jack Zacher and Ben Kessler.

The meeting was also devoted to discussions of the representatives of the large wrapping paper and bag manufacturers and distributors of the local trade as guest speakers. Those speaking were William C. Mansfield, Union Bag and Paper Corporation; Frank Hufnal, Huff Paper Company; Charles Mather, Mather Paper Company; and Samuel Kardon, American Bag and Paper Company. These trade associates extended their will towards the jobbers in the efforts to organize the group of paper men who are concerned with the jobbing of bags and coarser grades after many years of unsuccessful attempts at organizing and then spoke of the united purposes of all in stabilizing the market, stating that they were behind the jobbers 100 per cent for mutual welfare of distributors, manufacturers and jobbers.

William Flickstien, authority on credits, spoke of the credit interchange methods of the Clothing Manufacturers and Wearing Apparel Manufacturers Associations, outlining their systems as followed in the Credit Clearing Bureaus of those bodies. It is the purpose of the local jobbers to promote a Credit Interchange Bureau as one of the outstanding features of the organization and various speakers will give systems that are already followed by various associations so that a method adapted for the Paper Jobbers Associations will be founded from the factors entering into other credit interchanges.

A special committee to confer with distributors will be appointed by President Nathan Isen, of the association, head of the Enterprise Paper Company. President Isen presided at the meeting and introduced the guest speakers. The next meeting of the association will be held on March 16 at the Elks Club. It is the intention of the members to hold bimonthly sessions.

W. R. Cole In Own Business

Wilton R. Cole, former vice president and treasurer of C. S. Garret & Son Corporation for more than 22 years, will continue to engage in the roofing and building paper supply and roof cement business under his own name. The W. R. Cole business will be located in sales and executive offices at 30 South Marshall street, while warehouses will be maintained at 1128-1130 Kaighn avenue, Camden, N. J., the former quarters in Camden of the C. S. Garret & Son Corporation. The sales and executive offices in Philadelphia are located in the John Simmons Sons Company Building.

Schuylkill Paper Co. Consolidates Warehouses

Various warehouses of the Schuylkill Paper Company, with executive offices located in the Lafayette Building, have been consolidated and removed to a single building in the Bailey Warehouse at Delaware avenue and Bainbridge street. Here are provided more modern building and shipping facilities along railroad siding to better service the wholesale business which the firm conducts in fine paper. A larger area of warehousing is provided in the new location where are merged the stocks of paper supplies heretofore stored in various warehouses throughout the city.

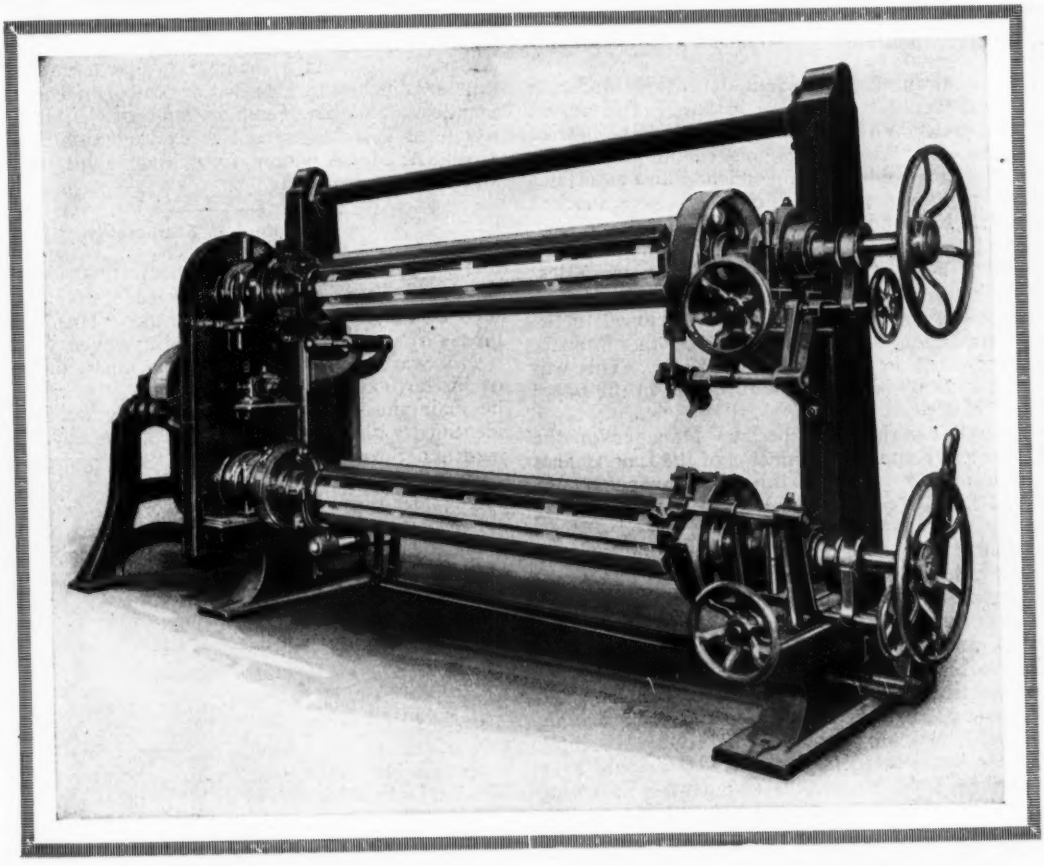
Awards Made Paper Trade Bowlers

The members of the bowling team of the John R. Howarth Paper Company, Inc., 804 Sansom street, were awarded the prizes in the First Half Series of games played by the Paper Trade Bowling League this season. George S. Howarth was awarded the cash prize for the best high score for three games, while Victor Eibel won cash award for the best high average for the First Half Games of the 1932 season. The D. L. Ward Company team won the first half games in the championship play, which will be continued in the finals to be played this Spring.

Trade Notes

President Morgan H. Thomas, of the Garrett Buchanan Company, with Mrs. Thomas, and their son Ellwood Thomas, of the firm, left for a two-week sojourn in St. Petersburg, Fla.

George Weaver, of the Garrett Buchanan Company, left last week to spend a fortnight at St. Petersburg, Fla., and plans to meet President Morgan H. Thomas, of the firm, in a series of golf matches at the southern resort.



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Obituary

Edward A. Doran

Edward A. Doran, vice-president of Blake, Moffitt & Towne, died suddenly at his home in San Francisco, on Tuesday, March 1. While he had not been in the best of health for the past few months, his condition was not considered alarming and his many friends and associates in the paper, printing and publishing fields were shocked by the news of his sudden passing.

His connection with Blake, Moffitt & Towne extended over a period of nearly twenty years and began as a salesman for the house in the Arizona territory. Due to his energy and ability the Arizona business developed to the extent of warranting the establishment of the Phoenix Division, over which he was placed in charge. This was the first important step in his brilliant career in the paper business on the Pacific Coast.

In 1921 he left Arizona to become Manager of the Country Sales and Export Departments of the Los Angeles Division, and shortly following this, the management of the Coarse Paper Department was added to his other activities.

He continued at Los Angeles until the fall of 1928 when he was elected vice-president, resident in San Francisco, to have full authority over the Purchasing Department of the corporation and over the Sales Departments of the San Francisco and Northern California Divisions. In addition to his duties in Northern California he retained management over the Arizona organization.

Mr. Doran was a comparatively young man, having been born in Holyoke, Mass., January 24, 1886. His entry into the paper business took place in Philadelphia as a salesman for the J. L. N. Smythe Company. Following this, he was for a short time in the brokerage business on his own account, which he left to join the Los Angeles sales staff of Blake, Moffitt & Towne.

Mr. Doran was an executive of marked ability and a leader, admired and respected by not only his associates but by all who knew him in the paper trade. With a strong and forceful personality and a high sense of loyalty and fairness he was regarded as friend and counsellor by customers and mill executives alike. Last year his associates in the paper trade elected him to the office of President of the Pacific States Paper Trade Association.

Outside of business his chief interest was in his home. He leaves a widow, and two children, a boy and a girl. Funeral services conducted at the home, 300 Urbano Drive, San Francisco, on Thursday, March 3, were attended by a large group of friends.

Alfred J. White

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 7, 1932—Alfred J. White, one of the prominent paper box manufacturers died recently at the Winchester Hospital, Winchester, Mass. His death was due to complications after an operation for acute appendicitis. Mr. White was 43 years old, born in Boston, March 1, 1889. He was a graduate of the Yale Law School in the Class of 1911. Shortly after graduation, he became head of the legal department of the Massachusetts Bonding and Insurance Company, Boston, one of the youngest to have such a position. Becoming associated with the Bicknell & Fuller Paper Box Company in 1916, he was later chosen assistant treasurer, in 1920 treasurer, and in 1928 general manager, when Charles E. Fuller retired.

Mr. White was a past chairman and a director of the New England Division of the National Paper Box Manufacturers' Association and a member of the New England Confectioners' Club. He was a director of the Salvation Army, Boston and a member of the town finance committee, Winchester. He was a member of De Molay Commandery, Knights Templar, and of William Parkman Lodge of Winchester, and Soley Lodge of Somerville, A. F. and A. M. A widow, four children, his father, a sister and brother, are living.

Thursford C. Scarborough

Thursford C. Scarborough, president of the Standard Card and Paper Company, 8 Spruce street, New York, died Sunday, March 6, in St. Luke's Hospital, after an illness of ten weeks. He was sixty-seven years old.

Mr. Scarborough was born in Cincinnati and passed most of his boyhood in Thompson, Conn., where in late years he maintained a summer home. He had been actively identified with the paper business in the vicinity of Beekman and Spruce streets for thirty-five years. Mr. Scarborough was unmarried and lived at the Great Northern Hotel, 118 West Fifty-seventh street.

Surviving are two brothers, C. R. Scarborough, vice-president of the Standard Card and Paper Company, and Harry Y. Scarborough, of Minneapolis, and a nephew, William B. Scarborough, a partner, of Hitt, Farwell & Co., of 48 Wall street.

Luke Monahan

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 7, 1932—Luke Monahan, formerly of the C. F. Hatch Company, Lowell, Mass., died recently. His death was due to carbon monoxide poisoning, the body being found in his garage.

Robert Gair Co. Makes Good Showing

The annual report of the Robert Gair Company, of New York, manufacturers of paper board and paper board products, made public following the annual meeting of stockholders, shows a net operating loss for the year ending December 31, of $309,206.09, after depreciation and taxes. For the same period the total loss, including all reserves and extraordinary charges, amounted to $651,320.82 as compared with a total loss of $1,370,583.18 for 1930.

This improved showing in the face of substantially lower prices and greatly depressed business conditions was made possible by important economies in the production and increased efficiency, according to E. Victor Donaldson, president. While the dollar value of products decreased materially, Mr. Donaldson said, the volume in tonnage exceeded that of 1930 and approximated the high level of 1929.

The company reports a cash balance as of December 31, of $1,076,501.50 and a ratio of quick assets to current liabilities of five to one.

The stockholders reelected George W. Gair, chairman of the board; E. Victor Donaldson, president; Edwin R. Marshall, first vice-president; Wilbur F. Howell, secretary; Emil O. Sommer, comptroller; and Ernest Meyer, treasurer. F. Winchester Denio, vice-president of the First National Old Colony Corporation, was elected a director, and as now constituted, the board consists of George W. Gair, E. Victor Donaldson, George E. W. de Clercq, Grant H. Fairbanks, Robert Gair, Jr., Wilbur F. Howell, Edwin R. Marshall, John M. Perry, T. Raymond Pierce, F. Winchester Denio and Emil O. Sommer.

Plans for Superintendents Meeting

BUFFALO, N. Y., March 8, 1932.—Under the leadership of Past President Fred J. Rooney, plans are rapidly taking form for the Thirteenth Annual Convention of the American Pulp and Paper Mill Superintendents Association which will be held June 2, 3 and 4 at the Hotel Statler, Buffalo, N. Y. Mr. Rooney as General Chairman of the Convention Committee has appointed the following chairmen of subcommittees:

Finance Committee—F. C. Nostrant, the Upson Company, Lockport, N. Y. Program Committee—F. W. Harney, The Upson Company, Lockport, N. Y. Transportation and Mill Visits Committee—John Nolan, International Paper Company, Tonawanda, N. Y. Attendance and Reception Committee—B. D. Millidge, Howard Smith Paper Mills, Ltd., Cornwall, Ont. Registration Committee—Robert W. Price, Niagara Paper Mills, Lockport, N. Y. Entertainment Committee—F. D. Bowman, Carborundum Company, Niagara Falls, N. Y. Ladies Entertainment—Mrs. Fred. J. Rooney, Lockport, N. Y. Golf Tournament—J. R. Hoover, Hubbs & Howe, Buffalo, N. Y. Secretary of the Convention Committee—R. C. Rooney, Lockport, N. Y.

A meeting of all of the chairmen of subcommittees was held on March 7 to review the preliminary work already accomplished and to discuss whatever remains to be done in completing the convention program.

"Attendance at the convention by all members of the American Pulp and Paper Mills Superintendents Association is more necessary and important than ever before," said Past President Rooney. "The absolute necessity for superintendents of all pulp and paper mills to operate their plants at the highest degree of efficiency under existing conditions is vital. The program for the convention is being arranged with the sole thought of providing information that will assist the superintendents in attaining this objective.

"Every phase of operation and management within the scope of a pulp and paper mill superintendent will be treated on the program. The Convention being held in Buffalo means that it will be within easy traveling distance to a large majority of our membership, not more than an over-night trip by rail. The mill owner who thinks he can not afford to send his superintendent to this convention or the superintendent who thinks he can not get away from his plant for the length of time required to attend the convention is making a serious mistake. This convention is going to provide the sort of concrete information of which every superintendent and every other pulp and paper mill executive is in actual need."

Large delegations to the convention are expected from such important paper making centers as, the New England States, New York, New Jersey, Pennsylvania, Delaware and Maryland, Virginia, West Virginia, North Carolina and South Carolina, Florida, Alabama, Louisiana and Arkansas, Ohio, Indiana and Illinois, Michigan and Wisconsin, California, Washington and Oregon and Ontario, Quebec and New Brunswick.

Standard for Fourdrinier Wires

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 2, 1932—The recently established commercial standard for Fourdrinier wire cloth as used on paper making machines, represents the cooperative effort of wire cloth and paper manufactures to improve the quality of this product. Confusion will be eliminated by the establishment of a standard basis of mesh classification and definite specifications as to the proper size of wire to be used in weaving the cloth.

Special attention is directed to the seam of the cloth which must be flat and straight and instructions are given covering inspection, packing and labeling.

The label used will set forth the mesh, kind of wire, width and length of the cloth, and in addition, will include a guarantee statement indicating conformity to all the provisions of the standard.

An appendix includes instructions regarding the proper care of Fourdrinier wire cloth in use and close adherence to these recommendations will result in extended service and the attendant economies.

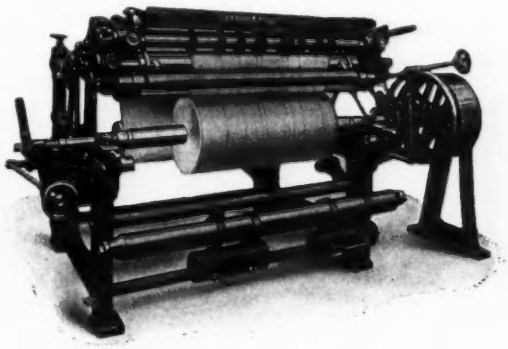
A glossary of terms is included for those unfamiliar with the language of the industry, and of equally great importance, to provide a common basis of understanding for certain terms that may have various local interpretations.

As usual in such cases, the cooperation of the Bureau of Standards was given only on request of the industry. The printed edition of the commercial standard includes a brief report of the general conference called by the above bureau to ascertain any need for modification and the extent of approval of the specification as formulated by the manufacturers of Fourdrinier wire cloth. The publication also includes the personnel of a standing committee appointed at the general conference to consider revisions of the commercial standard, as well as a list of companies indicating acceptance of the standard.

The general conference set November 1, 1931 as the effective date for new production under the standard and May 1, 1932 for the clearance of existing stocks. Copies of this publication may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. at 10 cents apiece.

Gibbs, Brower's New Line

Gibbs Brower & Co. Inc., 401 Broadway, New York, recently acquired the selling agency for the various types of machinery manufactured by the Jagenberg Works, of Dusseldorf, Germany, a concern which has for over 50



JAGENBERG SLITTER AND REWINDER

years, been engaged in the building of specialized machinery for paper mills, particularly slitting and rewinding machines. Among their latest developments is a slitting and rewinding machine suitable for use in connection with all grades of paper. Among its features are no interlocking of rewound coils, uniform hard winding, dust-free scissor cut, accuracy of cut, and special spring loaded knive discs.

New York Trade Jottings

George B. Hurd & Co., Inc., paper merchants, of 425 Broome street, New York, have leased space in the Empire State Building for executive office quarters.

* * *

The Centaur Paper Mills Supply Company has leased the building at 1,160 Flushing Avenue, through to Jefferson street, Brooklyn, from the American Radiator Company.

* * *

Kraft Bag Corporation has been incorporated under the laws of the State of New York, with a capital stock of $50,000 preferred and 100 shares common. Dorff & Levy, of 8 West 40th street, are the attorneys.

* * *

Economy Baler Company, of Ann Arbor, Mich, has moved its New York branch office from 50 Cliff street to 100 Gold street, New York. The Economy Baler Company is one of the leading manufacturers of baling presses and machinery in the country.

* * *

Alfred Gaskill, well known in the paper industry as former State Forester of New Jersey, and his wife, are in New York this week. They have been spending the winter months in the Sunny South and are visiting their New York friends before returning to their home in Vermont.

* * *

There was an excellent attendance at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, which was held at George's Restaurant, New York, on Tuesday. The improvement of conditions in the marketing of sulphite papers was freely discussed, as was also the probable effect of the proposed sales tax on the paper industry.

* * *

Muller Paper Goods Company, Inc., has purchased the Orsenigo Building, Long Island City. The company has been located in Ridgewood for the past twenty years, where it manufactures crinkle cups for baking dishes and candies, and also pan liners. The six-story building just purchased will be occupied within the next thirty days. The property was valued at $275,000.

* * *

Schroon River Pulp and Paper Company, of Warrensburg, N. Y., announces the appointment of Arthur N. Waring as manager of sales, and a general sales office has been opened at 52 Vanderbilt Avenue, New York; Telephone, Murray Hill 2-2331. This company, formerly confining its product to high grade news print and hanging papers, is now also equipped to manufacture special papers made from ground wood and chemical pulps, bleached and unbleached. Inquiries from paper merchants and converters are invited and will receive careful attention.

Mead Corp. Declares Dividend

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, March 7, 1932—The Mead Corporation of this city has declared the regular quarterly dividend of $1.50 a share on the 6 per cent cumulative preferred stock, series A, payable March 1, record February 15.

The company owns several paper mills in various sections of the country and is one of the leading concerns of its kind in the country. George H. Mead, who is actively identified with business interests in this city, is president of the company.

Boston Paper Market Steady

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 7, 1932—The Boston paper market has averaged steady during the last week, with a moderate volume of both fine and wrapping paper moving. There has been little material change from conditions of a week ago. In fine papers some jobbers and some representatives of paper mills, who maintain Boston offices, state that they have had a fairly good week, while others do not report much activity. There is a better tone in conditions generally, with a more encouraged feeling. Wrapping paper is fairly steady, with varying reports. Some say business is "just fair," with sales in practically the same volume as the previous week, while others note a distinct improvement in the amount of orders. A movement towards stabilizing the asphalting section of the industry is under way, and a New England group meeting is to be held in Boston this week. T. K. Davis, of the Nashua River Paper Company, is chairman of the committee of the Kraft Institute.

Box board conditions are about the same, with the call for material for shoe cartons continuing active. In paper stock there has been no marked change in the situation, with many grades continuing dull. The trade locally seems to be very much interested in the outcome of the endeavors of the waste paper packers in New York definitely to attain "more reasonable prices" on mixed papers and other lower grades of paper stock.

Union Bag Asks Valuation Decrease

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., March 8, 1932—The outcome of the actions brought by the Union Bag and Paper Corporation and the Union Bag and Power Corporation against this village for decreased valuations on their properties is being awaited with interest by residents hereabouts. At a term of Supreme Court last week decision was reserved by Justice Heffernan relative to two motions made in connection with the action. Motions were made by counsels for the village seeking that a writ of certiorari be vacated and an order appointing Judge Wyman S. Bascom as referee in the matter.

Officials of the village are seeking to have the writ and the order appointing Judge Bascom as referee vacated on the grounds that Judge Rogers, who made them, was without jurisdiction to act in the matter. It is claimed by the Union Bag and Power Corporation that their property is over-assessed $392,908 while the Union Bag and Paper Corporation seeks a decrease of $285,400. Village officials recently suggested to the complainants that they accept the assessment for this year and next year have an expert appraisal made. A decision is expected to be handed down the latter part of this month.

Paperboard Men to Meet

The Paperboard Industries Association will meet at the Hotel Commodore, New York City, March 22-24, 1932. Following is the schedule of meetings:

Meetings of the Standing Committees and of the Executive Committee will be held in the Tavern Club Rooms, Commodore Hotel, on Tuesday, March 22.

The Folding Box Group; Container Group Sales Executives with chairman J. M. Arndt presiding; Paperboard Group with vice-president F. C. Ash presiding and the Container Group with vice-president M. M. Madson presiding, will be held on Wednesday, March 23.

A general meeting of the three groups in joint session with president Henry D. Schmidt presiding, will be held on Thursday, March 24.

Stop These COSTLY REJECTS!

Printers and large paper users are buying their stock with more scrutiny than ever before.. In spite of lower price levels, higher standards of quality are being demanded.

Rejects are costly! Stock that comes back represents not only a tangible loss in cash—but also an intangible loss in good will and prestige.

Some rejects are unavoidable. Most of them are not. Lack of uniformity, for one, is inexcusable. Because—with up-to-date formation equipment, such as the latest type Voith Inlet with micrometer adjustment, absolute uniformity is easy to maintain at all times.

If rejects due to deficient uniformity are cutting in on your earnings—install a new Voith Inlet. Or, have your present equipment rebuilt. The marked improvement in quality and reduction in production costs will start paying gratifying dividends on your investment at once. Over 300 Voith installations are proving this to be true.

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TAPPI EMPLOYMENT SERVICE

The Technical Association of the Pulp and Paper Industry has been rendering a worthwhile service to its industry by acting as an employment clearing house. It has kept most of its membership employed and has aided a large number of companies in securing men, particularly well qualified, to fill positions that have been open.

Until the beginning of this year the association has been able to find jobs soon enough to allow men temporarily out of work to get a new job. During the past few months, however, there have been several highly qualified men register with the secretary but very few jobs have been reported. These men have had excellent experience and must find jobs as soon as possible.

Every executive in the paper industry should notify the secretary of the Technical Association of the Pulp and Paper Industry, 370 Lexington avenue, New York, when a mill manager, superintendent, engineer or chemist is wanted. There is no organization that can serve a company in employment matters as effectively as the Technical Association. Such service can be handled confidentially if desired.

The men available should not be permitted to remain unemployed. There are few, if any mills that can not profit immediately by employing such men. There are savings that need to be made now and these men know how to effect them. Even a temporary job will help these men. Why not hire a man to survey your mill for waste in steam, white water, production?

Now is the time for the paper industry to do real research work, to find new uses for paper and to develop profitable lines. Manpower is the most essential item that a company needs to consider. The hope for the future depends on the type of thinking that is applied to the industry's problems now. Antiquated thinking can lead only to red ink. The industry loses much when it permits capable, clear thinking, technically trained men with mill experience to join the ranks of the unemployed. Now is the time to employ and apply the services of such men.

Let the Technical Association keep you informed about the availability of men qualified to work well in your mills —superintendents, engineers, mill managers, and chemists.

WORLD PAPER SHORTAGE PREDICTED

Pulp and paper producers, seriously concerned because consumption lags so far behind capacity for production, may be surprised to know that a world paper shortage is threatened. That, however, is the claim put forward by W. Raitt, F.C.S., late cellulose expert to the Government of India.

Copies have been received of *The Empire Review* containing an article by him in which the claim is made that within the lifetime of the average man there will come a period when he may not be able to buy a newspaper or book without paying a price that would now be regarded as exorbitant. Consumption of paper today, he says, is far in excess of the amount ever dreamed of a few years ago, and the demand is still increasing. Every man, woman and child in the United Kingdom uses about 70 lbs. of paper per annum. If the same holds good on the American continent, then the United States and Canada consume between them 9,100,000,000 lbs. per annum. A normal advance in consumption would be 25 per cent in ten years, and the supply of timber cannot meet this demand, especially now that artificial silk, the photo film, the explosive industry, and a new type of varnish are all made of identically the same material, namely wood pulp.

With the above in mind, Mr. Raitt says that the obvious solution of the problem of a prospective paper famine lies in the use of bamboo, the supplies of which in Burma and India alone are inexhaustible.

"For many years," says Mr. Raitt, "I have been in charge of a Government experimental factory in Dera Dun in India, and have been able to prove that just as good, if not better, paper can be made from bamboo pulp at half the cost of wood pulp. This bamboo is an interesting 'grass.' Its growth is so rapid that it can be watched with the naked eye. If a stake is planted alongside a young culm, in twenty-four hours it will be found to have grown a foot to eighteen inches; in three months' time it will reach its full height of 120 feet, with a diameter of eight inches.

"The power of conquest and extension of these plants is almost limitless. They propagate by pushing out long roots to twenty or thirty feet, carrying nodes at nine to fifteen inches apart, from each of which a culm proceeds. Wood is a sixty-years' crop, whereas bamboo is an annual growth and its total life may be from seven to twelve years. Undoubtedly in the near future this product will have to be conserved for papermaking."

While it is common knowledge that Mr. Raitt has done excellent work for many years in experimenting with bamboo as a source of paper material, and his efforts have scientific value, the world is not likely to be flooded with bamboo paper. His prediction regarding the future world consumption of paper and the supply of other paper making materials is wide of the mark, as at the present time the United States, alone, is actually suffering from a glut of wood instead of a shortage.

Sulphite Institute Appoints Secretary

Thomas J. Burke, Director of the Cost Department of the American Paper and Pulp Association, has been appointed secretary of the recently organized Sulphite Institute. The other officers, as already announced are: Chairman, E. W. Kiefer, Port Huron Sulphite and Paper Company; Vice-Chairman, John E. Alexander, Nekoosa-Edwards Paper Company; Treasurer, George Stuhr, Continental Paper and Bag Corporation. The following are members of the Executive Committee: John E. Alexander, Nekoosa-Edwards Paper Company; Ralph A. Hayward, Kalamazoo Vegetable Parchment Company; George W. Houk, Hawley Pulp and Paper Company; E. W. Kiefer, Port Huron Sulphite and Paper Company; R. A. McDonald, Crown-Willamette Paper Company; George Stuhr, Continental Paper and Bag Corporation and Guy Waldo, Flambeau Paper Company. The Institute's offices are located at 370 Lexington Avenue, New York City, (Telephone Lexington 2-4500).

Tom Burke is well known throughout the pulp and paper industry, with which he first came in contact as a member of the staff of Price, Waterhouse & Co., when this firm was investigating news print costs in the interest of the news print manufacturers. On November 15, 1920, he was appointed secretary-treasurer of the Cost Association of the Paper Industry, which was formed to carry on accounting and cost educational work in the industry, following the dropping of this work by the American Paper and Pulp Association in 1918.

In April, 1930, the Cost Association of the Paper Industry was amalgamated with the American Paper and Pulp Association, in accordance with the plan to centralize association activities in the industry in the interest of economy, and Mr. Burke was then appointed Director of the Cost Department of the American Paper and Pulp Association, which again took over the work of promoting sound accounting and cost procedure in the industry, a logical and important activity for the parent organization to handle. In June, 1930, Jesse H. Neal appointed Mr. Burke secretary of the newly formed Glassine Division of the American Paper and Pulp Association, which has carried on effectively since that date.

Mr. Burke has studied all phases of trade association work and is one of the few trade association secretaries holding the certificate of the National Institute of Commercial and Trade Organization Executives, which is conducted by Northwestern University under the auspices of the United States Chamber of Commerce and the American Trade Association Executives. The National Institute was organized for the purpose of raising the standards of efficiency of trade and commercial association executives, Emmett Naylor being active as a member of its Board of Governors.

In addition, Mr. Burke is a member of the American Trade Association Executives, American Institute of Accountants, and the American Management Association. He is 43 years old, married, and has two sons, both of whom have won scholarships to the Hotchkiss School, Lakeville, Conn., which they are now attending. His home is at Larchmont, New York and he is a member of the Larchmont Shore Club, and of the Rye Country Club, Rye, N. Y.

Mr. Burke expects to continue to supervise the work of the Cost Department and to look after the interests of the glassine manufacturers.

Dayton Reports Better Signs

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, March 7, 1932—An indication of improving trade was at hand this week when Postmaster L. C. Weimer reported postal receipts increased last month over the same month of last year, for the first time in 20 months.

The February total receipts were $193,304.68, compared with $182,985.77 in February of the preceding year. The increase, it will be noted, was 5.64 per cent.

Postmaster Weimer pointed out that 10 years ago a similar increase following a series of monthly decreases in postal receipts, heralded the gradual return of better times and eventual prosperity. Whether the increase now means a similar change for the better, will depend largely on the figures available during March and April. If increases continue, and it now seems that this may be the case, better times may be assured, for the postal receipts always have been considered an infallible index to general trade.

The fact that the greatest change for the better was in meter settings was encouraging to all interests. Meters are used by many large and many smaller, active concerns for the handling of mail. Business houses which use stamp meters, and particularly industrial companies, have been responsible for this increase. The increase in that division more than offset a $14,251 decrease in the sale of gummed stamps. The meter setting last month amounted to $30,314.89, compared with $19,629.09 one year ago, or an increase of $10,684.90.

The Dayton postoffice also reported on the sale of stamped envelopes and sale of waste paper.

The Government stamped envelopes plant, located in this city, has been running on its regular order list, the sales naturally being controlled by business conditions throughout the country. As an industry it has not been adversely affected by conditions to the same extent as other firms depending on private contracts.

Throughout the Dayton industrial section and the Miami Valley there seems to be a more hopeful view of future trading conditions.

I. P. Co. Investigates Fatal Accident

[FROM OUR REGULAR CORRESPONDENT]

CORINTH, N. Y., March 7, 1932—The International Paper Company has started an investigation into the cause of an accident here last week which cost the lives of several employees. The workmen were demolishing the wall of an old sulphite storage building when it collapsed suddenly and buried them beneath tons of falling debris. Among those taking part in the investigation are T. G. Mangan, superintendent of the ground wood department, John Lundrigan, industrial superintendent, of New York City, and Clarence Reed, factory inspector of the State Department of Labor. No report of the result of their investigation was made but the officials announced that they would remain here for several days in order to await the result of an investigation to be made by the county coroner to determine if there was criminal negligence.

(No. 6 of a series of advertisements tracing the development and uses of modern chemicals.)

HIGH SPOTS IN CHEMICAL HISTORY

Mixing plant of Jersey City Water Works which was the center of the famous legal battle of 1908. It was developed in this suit brought by Jersey City against the Jersey City Water Co. that water treated by bleaching powder was sterile and entirely safe. This view of the first large installation in the U. S. for chlorinating city water shows Mathieson Bleaching Powder being added to mixing tanks originally installed by Col. Geo. A. Johnson.

Battery of Mathieson Liquid Chlorine cylinders used for supplementary chlorination at the Jersey City Water Works.

WATER PURIFICATION

TWENTY-THREE years ago, the summer of 1908, saw the opening of a famous trial in American history. Scientific men and municipal officials from all over the world discussed it with increasing interest... came to the crowded court-room and gave ten volumes of expert opinion... proved beyond question that the first large American installation for purifying city water with bleaching powder was both safe and practicable.

About this time liquefied chlorine gas came on the market, and within two years after the installation of the first treating tanks at Boonton, New Jersey, several municipalities had started applying liquid chlorine. The use of liquid chlorine for large scale application has constantly widened because it is more economical and provides a more uniform dosage than bleaching powder.

More recently, the ammonia-chlorine process has made it possible to eliminate one of the oldest bugaboos associated with chemically treated water... the presence of certain phenolic and chlorinous odors and tastes. Pre-ammoniation increases the efficiency of chlorination, helps prevent algae and after-growths in distributing systems and may be employed at unusually low cost.

COL. GEORGE A. JOHNSON
widely known sanitation engineer.

• • •

As one of the oldest producers and distributors of bleaching powder, chlorine and ammonia, Mathieson has had the privilege of cooperating with many leading water works officials in supplying these essential chemicals for water purification. H T H, the concentrated calcium hypochlorite now used so extensively in the sanitation field, was developed by Mathieson chemists and engineers and made available to industry by the Mathieson organization.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

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Sulphite Process

Method of Preparing Sulphite Liquor. Gustaf Haglund assignor to Patentaktiebolaget Gröndal-Ramén. U. S. pat. 1,811,268 (June 23, 1931).—In preparing a liquor having a high concentration of dissolved organic matter by the use of waste liquor from a previous cook, the waste liquor is mixed with an alkali bisulphite solution, with addition of the necessary quantities of sulphur dioxide.—A. P.-C.

Preparation of Sulphite Liquor. Alfred M. Thomsen. U. S. pat. 1,803,738 (May 5, 1931).—From 5 to 50 per cent of the waste liquor produced is added to fresh cooking acid in making up the acid for a subsequent charge. Lime is added to the remaining waste liquor, the precipitate thus formed is separated, and after washing the precipitate is returned to the acid-making system.—A. P.-C.

Process for Making Sulphite Pulp from Douglas Fir and Other Resinous Conifers. Henry K. Benson. U. S. pat. 1,805,799 (May 19, 1931).—Chips of resinous woods, such as Douglas fir, are pretreated with a dilute volatile alkali liquor at a temperature below the decomposition point of cellulose and above the decomposition point of the volatile alkali salts. The temperature should be below 150° C. and above 70° C., preferably about 100° C.—A. P.-C.

Method of and Apparatus for Digesting Wood. Paul E. Hodgdon. U. S. pat. 1,810,398 (June 16, 1931).—Chips are charged into a saturating tank together with hot or cold acid and the liquor is circulated until the chips are penetrated with acid. The chips are then transferred to a digester and cooked for the desired length of time; they are then transferred by means of a disintegrating pump to a second digester in which they are cooked further, and they are finally transferred to a third digester in which cooking is completed.—A. P.-C.

Preparing Pulp from Red-Pine Chips. Walter Seidel and Rudolf Fingado assignors to I. G. Farbenindustrie Aktiengesellschaft. U. S. pat. 1,804,893 (May 12, 1931).—A mixture of chips of red-pine wood and acid calcium sulphite solution is heated to about 130° to 150° C. and about 10 per cent of oxygen, calculated on the weight of the wood, is then added in small portions to the reaction mixture in the course of about 4 hours, the temperature being maintained.—A. P.-C.

Method of and Apparatus for Digesting Wood. Joseph E. Bond. U. S. pat. 1,808,830 (June 9, 1931).—The method aims at combining the advantages of both the Ritter-Kellner and Mitscherlich processes. Inside the digester is a relatively large vertical pipe extending downwards to the bottom of the digester, but not completely to the top. The liquor and chips are pumped from the space between the pipe and the shell and delivered into the bottom of the pipe, and are forced upwards and overflow into the main body of the digester. Liquor is withdrawn on the suction side of the circulation pump, passed through a heat exchanger and delivered at the pressure side of the circulation pump.—A. P.-C.

Top Relief Valve for Sulphite Digesters. Leonard Wimmer. U. S. pat. 1,808,092 (June 2, 1931).—The valve includes a casing having a lower portion of frustro-conical shape, adapted to receive the correspondingly shaped valve body, which is hollow and communicates on the bottom with a passage through which the fluid flows upward to the inside of the valve. Openings of different sizes are provided, arranged to be brought into alignment with the discharge passage. By turning the valve by means of a wrench applied to the squared end, the desired opening is caused to come in line with the passage; or the plug can be turned to close the passage.—A. P.-C.

Method of Manufacturing Sulphite Pulp. Torsten E. Waenerlund assignor to M. O. och Domsjö Aktiebolag. U. S. pat. 1,809,499 (June 9, 1931); Fr. pat. 701,783 (Sept. 8, 1930).—Cellulosic material is cooked with a cooking acid containing a high percentage of free sulphur dioxide. The cold raw acid before introduction into the boiler is passed through an absorption apparatus and enriched with sulphur dioxide at atmospheric pressure, and is then passed through a heat interchanger in which it is heated by warm waste products from the boiler; the heating medium is passed from the heat interchanger to the absorption apparatus; the acid thus enriched and heated is passed to a storage receptacle, and after heating is introduced into the digester.—A. P.-C.

Process for Pulping Material Such as Wood, Flax, Jute or

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Straw. Robert B. Wolf, Raymond P. Hill and Raymond S. Hatch assignors to Ligno-Cellulose Corp. U. S. pat. 1,804,967 (May 12, 1931).—A cellulose-containing material is digested at a pressure exceeding 6 atmospheres with an aqueous solution free from inorganic bases and containing over 12 per cent of free sulphur dioxide.—A. P.-C.

Pulping Process. Percy W. Neill assignor to Thomas L. Dunbar. U. S. pat. 1,815,576 (July 21, 1931).—The low-pressure-relief header is connected to a pipe leading to a distributor in the bottom of the acid storage tank. The high-pressure-relief header is provided with an injector which is fed with acid from the storage tank, which has the two-fold effect of maintaining a slight suction in the header and of absorbing the gases and heating up the acid from the storage tank. The acid passes from the injector into an acid accumulator. The top of the accumulator is connected to the injector so as to draw in the gases which collect in the top of the accumulator and mix them with liquor from the storage tank before passing it to the accumulator.—A. P.-C.

Sulphite Pulping Process. Thomas L. Dunbar. U. S. pat. 1,814,027 (July 14, 1931).—The digester is charged with chips and with hot acid, under pressure, as in the chemipulp process. During the greater portion of the cooking period steaming is carried out intermittently instead of continuously (e.g., for half-hour periods, with 20-minute intervals), and the steam is cut off entirely during the latter part of the cooking period (say, after a temperature of about 124° to 132° C., has been reached). It is claimed that this process gives a better pulp with considerable steam saving over the usual steaming method.—A. P.-C.

Chemical Processing of Cellulose Pulps. George A. Richter assignor to Brown Co. U. S. pat. 1,813,465 (July 7, 1931).—In order to convert pulp such as kraft or soda pulp into a white fiber of higher alpha-cellulose content and yet having the same physical characteristics (including the strength and tear resistance) of the original kraft of soda pulp, the latter is digested in an acid-sulphite liquor containing more free than combined sulphur dioxide to remove ligneous matter, pentosans and other impurities, washing the pulp in an alkaline liquor to remove the products of hydrolysis resulting from the acid digestion, washing the alkaline-digested pulp, and bleaching.—A. P.-C.

Sulphite Digesting System. August F. Richter assignor to Stebbins Engineering and Manufacturing Co. U. S. pat. 1,804,116 (May 5, 1931).—The system is applicable to mills having a number of digesters. The low-pressure gases and vapors relieved from one of the digesters during the end period of the cook are employed to force fresh sulphite liquor or pre-conditioned liquor through a pipe line leading to a second digester which has been previously filled with chips and is about to begin the cooking operation. Meanwhile, high-pressure gases and vapor relieved from a third digester are also introduced into the liquor line to add their heat units and gas to the liquor flowing to the second digester. An injector of the exhaust steam type is used, so that the low-pressure gases and vapors from the first digester are assisted in their escape from the digester, and so that the mixture of liquor, gases and vapors may be fed through the pipe line to the second digester under sufficient pressure to overcome the pressure which builds up in the second digester to the time that the pressure in the latter reaches cooking pressure.—A. P.-C.

Digesting and Cooking Liquor Preparation System. Albert D. Merrill. U. S. pat. 1,807,320 (May 26, 1931).—The acid liquor is prepared in the digesting system, and the accumulators of the digesting system are employed for the accumulation of acid liquor. The piping, valves and method of operation make it possible to use the accumulators for their usual work of absorbing gas, conserving heat units and preconditioning acid liquors; and in addition they form the acid storage tanks, thus enabling the hooking-up of the digesting system and the acid-preparation system in such a way as to eliminate parts previously considered essential.—A. P.-C.

Sulphur Burner. Michael J. Leary. U. S. pat. 1,812,795 (June 30, 1931).—The burner comprises a tubular combustion chamber in which is mounted a rotating spiral conveyor. At the inlet end of the combustion chamber is a three-way fitting: one branch is connected to the tubular chamber; a second branch is provided with a nozzle delivering an air blast which supplies the air required for combustion and at the same time causes rotation of the spiral conveyor by impact of air; the third branch is connected to the sulphur-feed hopper, which is provided with an adjustable valve to regulate the amount of sulphur fed to the burner.—A. P.-C.

Fillers

Process for the Manufacture of a Substance which Imparts a High Gloss and Pure White Color to Papers, Fine Papers, Illustration Paper and its Substitutes. Siebenhirtner Chem. Industrie-Werk G.m.b.H. Vienna. Czech. pat. 33,412.—Saponified stearine is added to the salt of a heavy metal, especially those of the zinc group and the mixture formed is added to the paper stock. For example, 15 parts of stearine is saponified with about 20 to 25 parts of potassium or sodium hydroxide and to this added a heavy metal, such as 100 kilograms of zinc sulphate.—J.F.O.

Paper with Carbonate Filler. Harold R. Rafton assignor to Rafford Process Corp. U. S. pats. 1,803,645 to 1,803,650 (May 5, 1931).—No. 1,803,645—Fibrous material is treated with a substantially nonbreakable paraffin emulsion and with a substance such as sodium resinate which will react with another substance such as alum subsequently added to form a precipitate and effect concentration of the disperse phase of the paraffin emulsion without breaking the latter; a carbonate filler is added, and a sizing restoring agent such as alum is afterward added so as to allow but a short time of contact of all the mixed materials before the paper-making operation. No. 1,803,646 relates to the addition of acidic material such as alum at the wet end of the paper machine in making substantially unsized paper from fibrous material and a carbonate filler. No. 1,803,647 describes the manufacture of a sized paper with carbonate filler by adding, to a mixture containing fibrous material, carbonate filler and rosin size, a size precipitant, such as alum, to allow but a short time of contact of the materials before the paper-making operation. No. 1,803,648 relates to a process in which there is added to fibrous material a substantially nonbreakable paraffin emulsion and a substance such as sodium resinate which will react with a second substance such as alum to form a precipitate and concentrate the disperse phase of the paraffin emulsion without breaking the emulsion; a carbonate filler is added and then the second substance mentioned as a precipitating agent. No. 1,803,649 relates to the use of a carbonate filler with saponified material such as sodium resinate in less than the quantity required to produce a substantially sized paper, with further addition of a precipitating agent such as alum at the wet end of the paper machine. No. 1,803,650 specifies a method of sizing paper filled with carbonate filler by separately mixing size and size precipitant, such as rosin size and alum, with starch and further mixing this product with fibrous material and carbonate filler a short time only before the paper formation.—A.P.-C.

Sizing Carbonate-Filled Paper. Harold R. Rafton assignor to Raffold Process Corp. U. S. pats. 1,803,642, 1,803,643, 1,803,644, 1,803,651 and 1,803,652 (May 5, 1931).—*No. 1,803,642*—A carbonate filler such as calcium carbonate with magnesium hydroxide is added to previously sized fiber in the paper-making process under conditions minimizing the time of contact of the mixed materials prior to paper making. *No. 1,803,643* relates to the treatment of similar mixtures with a sizing restoring material such as alum after the carbonate filler is added. *No. 1,803,644* describes the use of a substantially nonbreakable paraffin emulsion and a substance such as sodium resinate, capable of reacting with another substance such as alum, subsequently added, to form a precipitate and effect a concentration

of the disperse phase of the paraffin emulsion without breaking the latter, prior to the paper-making operation. *No. 1,803,651*—There is mixed with the fibrous material a paraffin emulsion made with a substantially water-insoluble type of emulsifying agent such as clay, a fiber-associating agent such as sodium resinate and alum and a carbonate filler, and afterward a "restoring agent" such as alum is added shortly before the final paper-making operation to permit short contact only of all the added materials. *No. 1,803,652* specifies adding to the fibrous material a carbonate filler and a paraffin emulsion made with a substantially water-insoluble type of emulsifying agent such as clay and also adding a potential fiber-associating agent such as sodium resinate and a precipitant for the latter such as alum so as to allow only a short time for reaction between the added materials before the paper-forming operation.—A.P.-C.

Paper with Alkaline Filler. Harold R. Rafton assignor to Raffold Process Corp. U. S. pats. 1,808,067 to 1,808,073 (June 2, 1931).—*No. 1,808,067*—In incorporating into paper filled with an alkaline filler (such as calcium carbonate and the like), an inorganic alkali metal salt with a pH greater than 7.0, such as sodium silicate, which is precipitable by material which depresses its hydroxyl-ion concentration, the fibrous material is mixed with the alkali metal salt, a precipitant such as alum and the alkaline filler, and there is added to the resulting mixture a "restoring material," such as a further quantity of alum, so that the materials are in contact only a short time before the paper is manufactured. *No. 1,808,068* relates to a generally similar process with short time of contact between the added ingredients and without limitation to the feature of adding a restoring agent. *No. 1,808,069* specifies, separately mixing the alkali metal salt and precipitant and adding the resulting product to the other paper-forming materials shortly before the paper manufacturing operation. *No. 1,808,070* specifies the manufacture of a substantially unsized paper filled with alkaline filler by adding an alkaline filler such as calcium carbonate (in an amount sufficient to impart a substantial degree of filling to the paper) to the fibrous material, under conditions favoring the minimizing of the time of contact of the alkaline filler and the fibrous material before the paper-making operation. *No. 1,808,071* relates to a generally similar process in which an aluminum salt added. *No. 1,808,072* relates to a similar process in which casein and alum are employed as added ingredients. *No. 1,808,073* also relates to paper manufacture from a similar combination of ingredients.—A.P.-C.

Alkaline Filler for Paper Pulp. Harold R. Rafton assignor to Raffold Process Corp. U. S. pat. 1,812,832 (June 30, 1931).—An alkaline filler such as lime sludge in wet condition is combined with pulp to prepare the material for shipment.—A.P.-C.

Heat requirements for Dryers. Otto Th. Koritnig. Zellstoff Papier 11, No. 3: 147 (March, 1931).—The heat requirement for dryers depends on the temperature and the degree of saturation of the ingoing and outgoing air. The author presents a series of equations showing how to make calculations for this heat requirement.—J.F.O.

Cooking and Heating with Hot Water. Klein. Zellstoff Papier 11, No. 3: 148-149 (March, 1931).—Recently high pressure hot water is being used for cooking and drying, especially in the textile industries, to replace steam. Water at 7 atmospheres has a temperature of 170°, at 10 atmospheres about 183° and at 18 atmospheres 208°. A closed system for hot water cooking or heating is described, which the author believes should be applicable in the manufacture of pulp and paper. This system requires very little make up water and works automatically. —J.F.O.

Drum Mill for the Manufacture of Paper and Board. Ulrich Kirchner, Biberach. Aust. pat. 122,333 (Dec. 12, 1930).—The drum mill contains two grinding or beating bodies which are united with a movable shaft located in the center of the drum, and by its rotation rubs against the inner surface of the drum.—J.F.O.

Pulp and Paper Testing

Determination of Moisture in Wood and Lap Pulp. Merrill A. Youtz and Byron E. Lauer. Paper Trade J. 93, No. 16: 31-32 (Oct. 15, 1931).—In the determination of moisture by the xylene distillation method, accurate results are very easily obtained by a modification consisting in refluxing the xylene-water mixture from the chips or pulp and collecting the water in a trap similar to that used in the petroleum industry for the determination of water in oils and greases. It gives practically the same results as the straight distillation method, with possibly a tendency to slightly higher results by the refluxing method, which is attributed to somewhat better penetration and removal of moisture, as the difference is more noticeable with chips than with sawdust or pulp.—A.P.-C.

Comparison Between Flint Pebbles and Porcelain Balls as a Means of Hydrating in the Pebble Mill Test. F. C. Peterson, S. C. Jeffrey and M. Maughan. Paper Trade J. 93, No. 16: 36-38 (Oct. 15, 1931).—Experiments proved that more uniform results may be expected for Mullen and tear values on duplicate test runs using porcelain balls as compared with flint pebbles, which is due to the more constant action with porcelain balls brought about by their uniform size and shape. A greater length of time is required to reach the peak of the bursting strength curve when porcelain balls are used. The action of the balls is more one of true hydration than that of the pebbles, and the possibility of false Mullen values, developed at the expense of tear, is reduced. At the peak of the strength curve higher bursting and tear values may be expected when porcelain balls are used, which is attributed to the fact that the balls exert practically no cutting action. The size of pebbles used has a direct bearing on the type of strength curve obtained, showing that surface area is a factor that must be considered when pebbles are used. It is impossible to draw any definite conclusions as yet regarding the ash content of pulp beaten with pebbles as compared with porcelain balls, as at present no data are available showing an ash comparison using similar weights of each.—A.P.-C.

Fiber Stain for Rapid Work. T. Linsey Crossley. Pulp paper Mag. Can. 30: 1145-1146 (Oct. 15, 1931).—A description of a simplified technic for staining fibers with iodine solution (almost any moderate strength is suitable, e.g., decinormal) and sulphuric acid (one volume of concentrated acid and one volume of water), which has been found of service where limited laboratory equipment is available and where time is an important factor.—A.P.-C.

Quantitative Estimation of Mixed Fibers. A New Method. Krais and Markert. World's Paper Trade J. 96: 997-998 (Sept. 18, 1931).—The method is based on the swelling power of concentrated calcium thiocyanate solutions towards cellulose and permits of practically quantitative separation of cotton, mercerized cotton and wool from rayon and silk. The fibrous material (generally rags, is conditioned in an atmosphere at 65% relative humidity and 20°C.; a 1-g. sample is added to 100 cc. of calcium thiocyanate (100 g. per 100 cc.) previously warmed to 70°C. and allowed to digest for 1 hour on the water bath, the contents being kept in motion by a stirrer operating at 200 to 300 r.p.m., the contents of the flask are poured through a 125-mesh brass sieve and the residue is washed in running water for 15 to 30 minutes, dried at 110°C., conditioned at 65% relative humidity and 20°C. and weighed. The method gave practically theoretical results on known cotton-rayon mixtures, particularly if a correction was applied for the amounts of pure cotton or wool dissolved by the reagent (raw cotton about 3.5%, mercerized cotton about 2.0%, wool about 3.0%); it is not applicable in the presence of chemical or mechanical wood pulp.—A.P.-C.

Improvement in the Design of Pulp-Drying Ovens. James Strachan. Paper Maker & Brit. Paper Trade J. 82, No. 2.

xxv-xxix (Aug. 1, 1931).—After discussing the defects of the ordinary box type of water- and air-ovens and modifications thereof for the drying of large pulp samples, a description is given of the Wirtz oven as modified by the author, pointing out its merits.—A.P.-C.

Hydration Measurement by the Boiling Method. T. R. LeCompte. Paper Trade J. 93, No. 14; 42-44 (Oct. 1, 1931).—Exposure of beaten stuff to the effect of boiling water has a positive and accurately duplicable depressing effect on the wetness. Work carried out with a view to developing a definition and method of measurement of hydration, based on the above fact, gave results agreeing with those of Nakano (Paper Ind. 19, No. 10: 4-10 (1924); 19, No. 11: 4-8 (1924); J. Soc. Chem. Ind. (Japan) 28: 244 (1925); Cellulose Ind. (Tokyo) 4: 178-82, 300-4 (1928) 5: 264-269, 317-326 (1929). 6: 31-35, 75-75, 89-99 (1930) and of Guild and Mills (World's Paper Trade Rev. 81: 894 (1924)). These results are reviewed. An interpretation of Nakano's conception of the nature of wetness is given.—A.P.-C.

Pulp Evaluation. Demonstration of the British Standard Method. Anon. World's Paper Trade Rev. 96: 1028, 1030 (Sept. 25, 1931).—A brief outline of the operation of the British standard sheet machine.—A.P.-C.

Early History of Wood Pulp Testing. James Strachan. Paper Maker & Brit. Paper Trade J. 82, No. 3: xlix-li (Sept. 1, 1931).—A brief outline of early work done on the testing of wood pulp for moisture at the end of the last and beginning of the present century.—A.P.-C.

Microscopial Examination of Pulps for Rosin. T. T. Potts. Proc. Tech. Sect. Papermakers' Assoc. Gt. Brit. Ireland 10: 339-340 (1930).—A modification of the Sudan III test is described. The pulp is stained in a 0.2% solution of Sudan III in 70% alcohol for 1 hour, washed rapidly with 50% alcohol, cleared in 50% glycerine and mounted in glycerine jelly. Rosin and fats are stained red, the fibers remaining colorless.—A.P.-C.

Rapid Determination of Pulp Consistency Changes. J. V. Martin. Paper Trade J. 93, No. 12:31-32 (Sept. 17, 1931).—The method is essentially as follows: 1 l. of completely disintegrated stock is poured into a metal beaker (4 in. in diameter by 7.5 in. high), a "Dumore" electric stirrer is inserted exactly in the center, allowed to run for about 20 min., quickly withdrawn, and the time during which the stock continues to rotate is noted by means of a stop watch. The consistency is obtained from curves previously prepared for the the same kind of stock and at the same temperature. It was found that at constant consistency: (1) increase in temperature increases the time of rotation directly along a straight-line curve from 10° to 50° C. (using unbleached sulphite pulp). (2) the shorter the fiber, the longer the time of rotation; (3) the higher the freeness of any particular pulp, the lower the time of rotation. The method is limited to consistencies below 1.2%; but denser stock may be quantitatively diluted to come within this range.—A.P.-C.

The Value of pH Tests to the Practical Paper Maker. J. W. Berriman. Paper Maker & Brit. Paper Trade J. 82, No. 3: lviii-lx (Sept. 1, 1931).—The meaning and method of determing pH values is described, and its advantages in sizing control are shown.—A.P.-C.

The Determination of the Degree of Cooking of Pulps. Kurt Berndt. Zellstoff Papier 11, No. 5: 257-258 (May, 1931).—All important details are mentioned and the methods are classified as follows, (1) color method, (2) lignin, (3) halogen consumption, (4) oxydation, and (5) fluorescence. An exhaustive bibliography is given.—J.F.O.

Mill Water

Mill Water Used in the Paper and Pulp Industry. H. Haupt. Papier-Fabr. 29, No. 18: 273-279 (May 3, 1931).—The water requirement of about 200 liters for 1 kilogram unbleached pulp, 550 liters for 1 kilogram bleached pulp, 500 liters for newsprint and 900 to 1100 liters for fine paper emphasizes the importance of a steady supply of good water. The paper is divided into well water and surface water, the latter which supplies by far the greater part of the water used in the pulp and paper mills. Well water is treated to remove excess quantities of iron, iron bacteria and manganese and must also be treated to remove gas and air which it carries along, mainly carbon dioxide. The surface water must be settled and filtered and the objectionable matter precipitated out. There is an optimum pH value for the precipitation of the impurities in the water. Results with aluminum sulphate and other chemicals are given. There are several tables accompanying the article.—J. F. O.

Indiana Standard Oil Co. Joins TAPPI

The most recent company to become one of the progressive group of contributing members of the Technical Association of the Pulp and Paper Industry, is the Standard Oil Company of Indiana.

The Standard Oil Company of Indiana was organized in 1889 for the purpose of refining and wholesaling petroleum products in the territory served from Chicago. Its original plant was built at Whiting, Indiana, to handle oil brought by pipe line from a field near Lima, Ohio. For many years the company developed as a manufacturing and wholesaling concern. At the same time it gradually engaged in retail distribution of products, especially through tank wagon deliveries from bulk plants to farmers in the middle west. With the increase in the use of the automobile it developed the service station in the second decade of the century and engaged more largely in retail business. About 1921 the company began a period of rapid expansion by acquiring producing properties and participating in pipe line and crude oil purchasing units.

At the present time it operates refineries at thirteen points in the United States and three abroad. These have a total crude oil through-put capacity of 394,000 barrels a day. In 1930, 99,613,851 barrels of crude oil were run through these plants. The company controls 4,400 miles of trunk pipe lines and about 2,500 miles of gathering lines. Its tank ships operate on the ocean and the Great Lakes. Its marketing units carry on sales in most of the states of the union and in several foreign countries.

The present directors of the company are the following: Edward G. Seubert, Allan Jackson, Robert H. McElroy, Edward J. Bullock, Amos Ball, Robert E. Humphreys, Charles J. Barkdull, Melvin A. Traylor, Bruce Johnstone, A. W. Peake, Louis L. Stephens, Robert E. Wilson and Max G. Paulus.

All but two of these are active executives in the company and heads of various departments of its operation.

The Standard Oil Company of Indiana has developed special attention to serving the pulp and paper industry, especially through its lubrication services and through supplying of material for the manufacture of certain kinds of paper.

In each of the thirty sales fields operated by the parent company in the middle west lubricating engineers are available to give expert lubrication engineering service to any paper plant. The Technical Division of the company's general staff has prepared special bulletins on pulp and paper mill machinery and its lubrication which are available to the industry on request.

Paraffin manufactured by the company is used in the paper industry for coating bread wrappers, butter cartons, and many other packaging materials. White oils are extensively used in the manufacture of paper for wrapping meats and fruits. The company supplies large quantities of petroleum asphalt to manufacturers of roofing paper and a number of other allied products.

Two departments of the company which are constantly in touch with the pulp and paper industry are the Lubricating Department, headed by L. C. Welsh, manager, and the Asphalt Department. At the head of the Technical Division under Mr. Welch is H. J. Saladin, and active with him are several engineers who are constantly studying problems of lubrication in the paper industry. The Asphalt Department is headed by C. C. Larkin.

The new relation of the Standard Oil Company of Indiana to the pulp and paper industry will enable it to participate more directly in the study of the application of petroleum products to the industry.

Electrical Developments in 1931*

Edited by E. F. Bearce and R. G. Macdonald

Westinghouse Developments

By W. H. Artz[1]

The year 1931 has witnessed some important electrical developments in the pulp and paper industry. During the year we find new types of electrical equipment made available, by which manufacturing processes can be improved. Older methods also have been carefully scrutinized with a view towards improving the operating efficiency and reducing the operating costs. This modernization of the industry has been the result of a very close cooperation between the mill operators and the manufacturers of electrical equipment.

Electron Tubes

One of the important new electrical devices which has been made available for the industry is the electron tube. This device has untold uses in the industry. For years it has held an important place in the field of sound transmission but only recently has it been made available for industrial use. The electron tube has many different forms. It serves as an extremely sensitive and accurate detector. It serves to amplify minute electrical effects. It also serves as a sensitive relay or control device. These devices operate at extremely high speeds and they have no moving parts subject to wear or failure.

As detectors these tubes have been successfully applied in the industry in the form of paper break indicators for indicating the continuity of the sheet as it is formed on the wet end of the paper machine or as it goes to the reel, opacity meters for measuring the opacity of paper sheets, color matchers for comparing the colors of various paper samples, and, smoke recorders for indicating boiler house combustion performance.

Considerable development and experimental work has been carried on in applying the electron tube to such measurements as paper thickness, moisture content, stock consistency, liquid densities, etc., and this work gives promise of very satisfactory results.

As regulators where frequently a combination of the various functions of the tubes such as detecting, amplifying and relaying are required, some very interesting results have been accomplished. Cutter controllers of this type have been applied which permit cutting a roll of printed or otherwise marked paper with a very high degree of precision. Thermionic type voltage regulators which maintain voltage with an extremely high accuracy have been developed. This same type of equipment with minor modifications is applicable to speed regulators, where very accurate results are required such as on paper machine drives. Undoubtedly this sensitive device will find many other important uses in the solution of those problems of the industry requiring close and accurate inspection, regulation or control.

Supercalender Drives

The production costs in the finishing room are very closely associated with the operating costs of the supercalender. The Westinghouse Company recently developed and placed in operation at the plant of the Bryant Paper Company, Kalamazoo, Michigan, a synchronized super-calender and winder drive. This equipment is applied to a 160 inch Textile Finishing Machinery Company's supercalender, served by a No. 48 Cameron winder. The equipment is designed to operate up to a maximum speed of 900 feet per minute. The main drive is of the dual frequency type, with a 250 h.p. wound rotor induction motor for driving the calender. The winder is driven by a 30 h.p. induction motor which is synchronized with the supercalender so that the operating speed at all times equals that of the supercalender. The unwinding stand of the supercalender is provided with braking generator and sheet tension control. With this equipment it is possible to wind shipping rolls direct from the supercalender thus eliminating the rewinding operation necessary with older layouts. It is also possible to accurately control and automatically maintain the tension in the sheet between the unwinding stand and calender and between the calender and winder, thus permitting of maximum production with fewer snap-offs or calender cuts. The positive speed synchronism of the winder with the calender also permits maintaining a uniform tension in the sheet from stand still up to productive speeds, thus eliminating any sudden increase in tension or slackness in the sheet during acceleration or deceleration of the drive.

Turbine Driven Generator

The use of a non-condensing turbine driven a.c. and d.c. generator unit for obtaining a heat balance in connection with paper machine drives still offers economic possibilities in many mills. The unit which is being installed this year by the Thilmany Pulp & Paper Company of Kaukauna, Wis., is a typical example of this type of drive. In this installation an 800 kw. non-condensing turbine, taking steam at 185 pounds pressure and exhausting at 35 pounds pressure, drives a 625 k.v.a. 80 per cent power factor alternating current generator and a 300 k.w. d.c. generator. The d.c. generator furnishes power to two single motor paper machine drives operating over a 3 to 1 speed range.

The turbine is provided with a back pressure regulator which automatically controls the steam admitted to the turbine, permitting it to pass only sufficient steam to meet the low pressure steam requirements for drying and other process work. A sufficient amount of the power developed by the turbine will be delivered to the d.c. generator to meet the load requirements of the two paper machines and the balance will be delivered to the mill alternating current bus. As the paper speed on the machines is reduced, their load requirements are also reduced and more power will be delivered to the mill bus. This makes a very economical arrangement, permitting the mill to automatically maintain a heat balance, and to obtain both heat and mechanical energy from the steam generator at a minimum cost. This arrangement also affords a dual drive for the paper machines as the a.c. unit may furnish power to the d.c. generator in case the turbine is out of service for inspection or repairs. This type of drive also serves to prevent delays which result from momentary power interruption as the switching equipment can be arranged to disconnect the a.c. unit from the bus at the same time removing the back pressure control from the turbine and placing it on independent speed control.

Sectional Drive

Some very important improvements have been applied to the sectional electric paper machine drive. These drives are now provided with complete control from the front of the machine. Individual stations for the independent sections of the machine permit starting, stopping, inching and hand adjustment of the draw of the section. The hand operated draw adjustment is obtained by means of a remote electrically operated belt shifting device consisting of two small induction motors. One of the motors is located on the front of the machine and the other on the back of the machine. A movement of the one on the front of the machine by means of a small handwheel causes a similar movement of the one on the back of the machine resulting in an adjustment of the belt on the speed changers.

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* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 15-18, 1932.
Note: Representatives of the Westinghouse Elec. & Mfg. Co. and the General Electric Co. were requested to submit data for this report.
Contribution of the TAPPI equipment committee

[1] Engineer, Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.

Slack Take-Up

Another recent development is the slack take-up for calender and reel sections of the machine. This equipment permits the operator to momentarily speed up each of these individual sections by pushbutton control, thus quickly taking out the slack which is ordinarily present immediately after the sheet has been threaded through the section. This operation is performed without altering the permanent draw adjusting of the section. The use of this equipment permits putting the sheet through the calenders and on the reel in a minimum of time and with the minimum loss of production from calender cuts and wrinkles.

Synchronous Motors

Special designs of synchronous motors have been recently placed on the market. The "Lo-Kva" synchronous motor is one having a special damper winding which permits developing comparatively high starting and pull-in torques with low kva. inrush. This design applies to motor in speeds 514 to 1800 r.p.m. The motor is suitable for starting directly across the line with a current inrush not in excess of the former designs when using the more complicated controls of either the two circuit or reduced voltage types.

There has also been a demand for a synchronous motor which would develop high starting torque and pull-in torque with low Kva. inrush. Such a motor is applicable, in mills having limited generating, transformer or transmission line capacity, to grinders, barkers, lineshafts, or other heavy duty drives. To meet these and other similar requirements the "Simplex" motor has recently been developed. This motor in addition to the d.c. excitation and slip rings has slip rings connected to a distributed phase winding in the d.c. pole faces of the rotor. The motor has starting characteristics similar to a wound rotor induction motor and is started by automatic control of the secondary resistance connected in the damper winding circuit. When the motor approaches synchronous speed the d.c. field excitation is automatically applied and after synchronizing the unit operates as a synchronous machine.

An extremely important development in the field of circuit breaker design is the De-ion grid as applied to the contacts of oil circuit breakers. The use of these grids permits obtaining the most effective use of the switch oil. They can be applied to old breakers at a very low cost. Their use reduces the arc period and energy, eliminates oil throwing and increases the breaker capacity. Old switching equipment can be modernized at a very low cost.

The cubical type of construction for motor control is becoming quite popular in the industry. This type of construction is characterized by dead front panels with suitable breakers, relaying and metering equipment completely enclosed in a metal cabinet with doors giving access to both the low voltage wiring and to the high voltage breaker parts. This type of control affords the maximum degree of safety to the operators and enables the mills to install a completely assembled and factory tested unit in the minimum of time.

As the pulp and paper industry develops there will undoubtedly be many new applications for electrical equipment and many ways in which such equipment can be economically applied. The important function of this type of equipment in meeting the industry's requirements entirely justifies a very careful review of the recent developments in this field.

General Electric Developments

Recording Color Analyzer

The General Electric recording color analyzer, Fig. 1 and 2, is a photo-electric device which automatically draws for permanent record the color curve of a sample in the visible spectrum, i.e., between 4000 and 7000 Angstrom units. The device is constructed so that the light reflected upon the surface of a solid material, or the light transmitted by a transparent substance may be the basis of the final curve drawn.

The operation of this machine is essentially as follows: Light from a vertical, tungsten-ribbon filament passes into the slit of a dispersive system. Emerging from this system through another slit as monochromatic light, it is passed into a collimator. Here it is divided; half is taken off with a right prism and brought to a focus at a sample stand, and half passes through a shutter and is brought to focus on a flicker disc, which has on its surface a standard white pigment. Light from the sample is collected and brought to a focus in the plane of the flicker disc and is passed into a photoelectric tube. As the flicker disc is revolved, the photoelectric tube views alternately the standard and sample at a rate of 60 alternations per second. A greater amount of light reflected from the standard than from the sample results in a pulsating photoelectric current which is amplified electrically and used to control a motor-operated shutter in the standard light path. This shutter will operate until the beams are of equal intensities. The balance point is indicated by the recorder. As the recorder drum revolves, the wave length of the light passing through the exit slit of the monochromator is varied at a uniform rate from 400 to 700 millimicrons, and the curve obtained indicates at each wave length the position of the shutter which allows an amount of light to be reflected from the standard equal to that being reflected from the specimen. The shutter is so constructed that the opening is directly proportional to the amount of light passing through and thus the ordinates of the curve become the reflection coefficients of the specimen in terms of the standard white. To convert the ordinates into absolute reflection coefficients, correction factors are applied to the curve. Approximately 3½ minutes is required to obtain a characteristic curve—the period from the time when the pen starts drawing the curve until it is raised after completing the curve.

The power source for the analyzer consists of 110 volt, 60 cycle, alternating current, to supply the power transformer and the flicker motor, and 8-volt direct current, for the lamp and filament currents. It is recommended that an 8-volt, 210 ampere-hour storage battery be used for the latter purpose.

Since this is a recording instrument, it does not require the services of an operator with specialized training in optics. As this service uses a photoelectric tube, it has ample sensitivity at the violet end of the spectrum where visual spectrophotometers must always fail because of the low visibility of violet light.

The importance of the recording color analyzer lies in its value to industry in nearly every branch of which, control of the color of its products is necessary. Accurate measurement of colors is the first concern of manufacturers of fabrics, particularly in the delicate shades which often deceive the eye. Color control is also of basic importance in the making of inks, paints, dyes, and paper. In fact, there is scarcely an industry without a color problem.

One of the most important fields of usefulness for the recording color analyzer is in cataloging of the curves of different

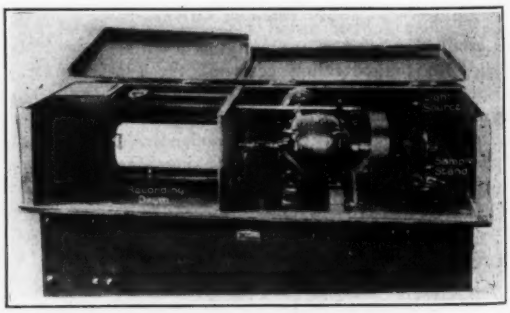

FIG. 1
Recording Color Analyzer. View with front plate removed.

dyes, so that new colors with predetermined characteristics can be obtained at any time by the proper mixture of standard dyes already at hand.

These equipments are in use by the following companies:—
Nashua Gummed & Coated Paper Co., Nashua, N. H.
Eastman Kodak Company, Rochester, N. Y.
Cheney Brothers, So. Manchester, Conn.
Dow Chemical, Midland, Mich.

Photoelectric Cutter Register Control

The operation of a paper cutter so as to maintain register between the cutting operation and the printed matter on the surface of the paper can now be controlled by photoelectric equipment. At the time the printing is put on the paper, a spot is printed in the margin and this spot passes before a photoelectric tube mounted on the machine. As long as the spot passes before the tube when the cutter is in the proper position to cut in register with the printing (as determined by a contact disk on the cutter shaft) the photoelectric equipment does not function. If the spot appears before the photoelectric tube when the paper is not in synchronism with the cutter knife, a circuit is energized which momentarily increases or decreases the speed of the cutter knife.

By this means, the cutting is kept in register with the printing despite slippage and stretching of the paper. Because of the high linear speed of the paper and the desirability of keeping the spot as small as practicable, it is necessary to use Thyratron tubes to respond to the amplified photoelectric impulse and energize the magnetic devices required to increase or decrease the speed of the cutter knife. In one installation, this equipment responds reliably to a spot which passes before the photoelectric tube in one four-hundredth of a second. (Fig. 3).

Low Frequency Generator for Dual Frequency Supercalenders

A new type of low-frequency generator is available which makes it possible to apply the dual-frequency supercalender drive on all commercial power voltages and frequencies. Heretofore and from an economic standpoint, the dual frequency drive has been limited to low voltage installations, the voltage values not exceeding 550 volts.

The dual-frequency method of supercalender drive is a system whereby one a.c. motor is used to drive the supercalender. Slow speed operation for threading is obtained by operating the motor from a low-frequency power source. This system of drive is particularly suited for driving a battery of three or more supercalenders. Considerable saving in cost may be made on such an installation as compared with the conventional two motor type of supercalender drive.

The new low frequency generator is driven by a standard squirrel cage motor. The generator is somewhat similar in construction to a more conventional direct current generator except that the output is low frequency alternating current (2½ to 5 cycles). The machine is self-excited so that it is not connected electrically in any way to the mill supply.

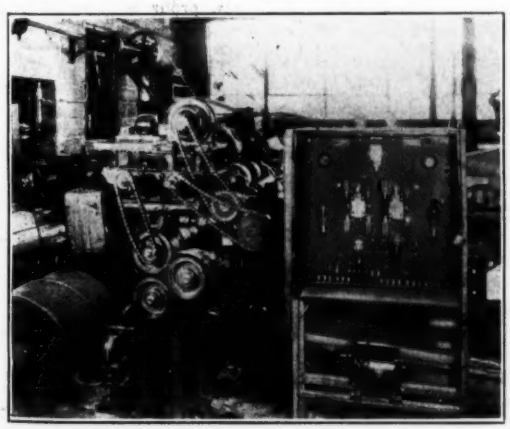

FIG. 3
G-E Photoelectric Paper Cutting Control Panel, applied to cement-bag machine, Jaite Paper Co., Jaite, Ohio.

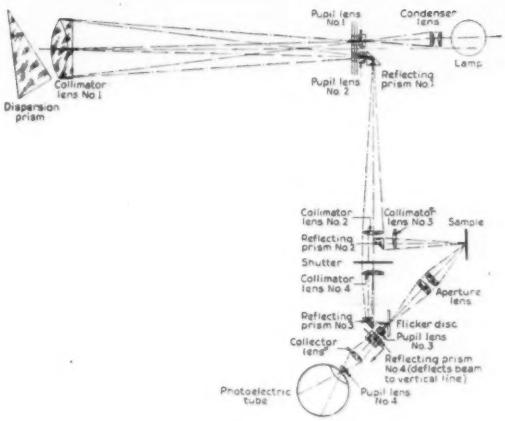

FIG. 2
Optical system of General Electric Recording Color Analyzer.

The required voltage output is obtained by proper design as in conventional direct current practice. The frequency is adjustable after the equipment is installed, thus allowing considerable flexibility in the threading speed.

Rheostatic Type Speed Regulator for Single Motor Paper Machine Drives

The speed regulator (Fig. 4) developed for single-motor drives is essentially a direct current voltmeter element whose coil circuit is energized by the voltage of a pilot generator and whose armature is balanced against a spring. The armature shaft of this voltmeter element supports a vertical lever arm with a double set of horizontal contacts at the top and an oil dash pot at the bottom. The contacts thus move in a horizontal direction to the right or left, depending upon the state of unbalance which exists between the torque produced by the voltmeter element and the torque produced by the spring.

Between the upper contacts, a silver star wheel driven by a

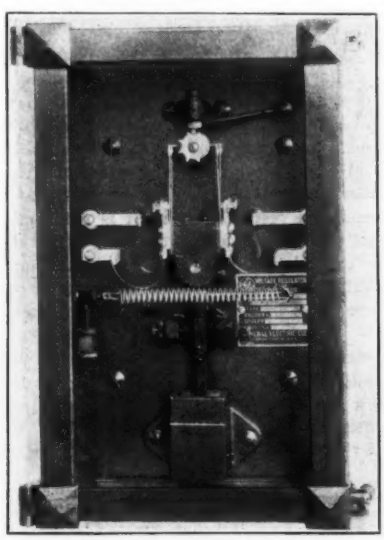

FIG. 4
G-E Type Fd-2-A1 Generator Voltage Regulator.

Telechron clock motor rotates continuously at 4 r.p.m. If an unbalance of the regulator causes the horizontal contacts to impinge upon the points of the star wheel, they form a complete electrical circuit. Through relays, the contacts cause a generator or a motor-field rheostat to operate to correct the speed change which disturbed the balance of the regulator. The contour of the star wheel is so designed that a small speed change of the drive produces a quick response and the star wheel throws the horizontal contacts back to prevent over-travel. The rotation of the contacts and the sliding action of the horizontal contact on the star wheel keeps both contact surfaces free from pitting.

This speed regulator when used in conjunction with a specially designed motor operated generator field rheostat has proved to be equal to the exacting requirements of paper-machine speed regulation.

Two-Motor Drives for Paper Machines With Extremely Wide Speed Ranges

Most paper machines operate over speed ranges of not more than ten-to-one. However, one paper manufacturer required drives to operate his machines over a speed range of thirty to one and to provide close speed regulation at any operating speed within this range. A special drive which is a modification of the conventional single-motor drive, and whose speed range is obtained by Ward-Leonard control, was designed to accomplish the desired result.

There are two driving motors instead of one. The larger of the two motors operates the paper machine from top speed down to one-sixth of this speed. When the low speed with the large motor is reached, the second and smaller driving motor is coupled through a gear unit, having a ratio of five to one to the shaft of the larger driving motor. By means of a switch on the control panel, power from the d.c. generator is transferred from the large motor to the small one and the paper machine may be operated over the six to one speed range provided by the control of the generator armature voltage with a maximum speed which is one-fifth of the maximum speed obtained with the large driving motor.

A single-speed regulator maintains constant speed of the paper machine whether it is operating from the large or the small motor; and the control equipment provides complete protection for the drive in either case, including special interlocking to prevent driving the small motor and its gear from the large motor and to prevent operating the small motor and gear at excessive speeds.

Insulation for Electrical Equipment*

By E. C. Dieffenbach [1]

Insulation Materials

The great variety of insulating materials in use today has been developed through necessity; the rapid growth of the electrical industry and the extremely varied demands of electrical apparatus has been made possible through the discovery and fabrication of adequate insulation. Materials possessing not only insulating value but the requisite electrical, physical and chemical properties have been the object of research and investigation and many individual problems have been presented to the engineer, the chemist, and the insulation specialist for solution.

A few of the many requirements of insulation are briefly mentioned here; liquids find their place in the various transformer oils as an aid to the solid, mechanically rigid insulations; liquids are also used in the multitude of varnishes and flexible insulations applied in strand and coil insulation. Sometimes the materials must be heat resistant or arc proof, as in finger shields or arc deflectors in controllers. In some materials, heat conductivity is required as in coil insulation of rotating apparatus, whereas in other apparatus heat insulation is desirable, as in electric heating devices such as electric ovens, flat irons, etc. Wearing under abrasion is necessary in some cases such as commutator segment insulation and again, resistance to abrasion may be highly desirable as dead segments in rheostats or wire insulation.

Insulating substances can usually be compounded so that the resulting material meets most of the requirements of the form of apparatus under consideration. Here the skill of the chemist and of the insulation research specialist is made manifest.

A statement of the physical properties required necessitates decision as to the relative importance of tensile or compressive strength, rigidity, or flexibility, resistance to or change with temperature rise, high or low heat conductivity, hardness, toughness, etc.

When considering the thermal requirements such points as the following should have consideration; heat endurance, flash and fire points (if a liqiud), change of electrical resistance on heating, thermal expansion, etc.

In the matter of chemical requirements, it is important to determine whether the material should preferably maintain or change its usual form, as hardening by oxidation or softening by heat and interaction of oils. Compounds, where several are used in the same apparatus, must also be carefully studied and determination made of the effect of one material upon the other.

The properties just mentioned are determined by the methods described more fully under "Testing"

Before discussing specific insulation problems in the plant, a few of the "raw" materials entering into the manufacturing and application of insulation should be mentioned. There are a great variety of classifications, a few of which are as follows:

1—By gases, liquids and solids
2—By organic and inorganic materials
3—By temperature limits on which the ratings of electric machines and apparatus are largely based
4—By "raw" products

Case 3 is the favored classification of the A.I.E.E. Standards and other national standards of similar standing and is the criterion for the insulation of electrical machines and apparatus with regard to heating. This is one of the largest factors affecting the life of insulating material. For the purpose of discussion in this paper, the classification by raw products (case 4) will be made with comments on their general application.

CLASSIFICATION OF INSULATION MATERIALS BY "RAW" PRODUCTS

1—Fibrous (organic)
  a—Papers
  b—Fabrics
  c—Woods
2—Fibrous (inorganic)
  a—Asbestos
3—Mica
4—Ceramics
5—Slate, marble and soapstone
6—Bitumens
7—Oils
8—Resins and gums
9—Oxides

AIDS TO INSULATION

1—Molded compounds
2—Solvents
3—Varnishes
4—Cements, bonds and adhesives
5—Clays, silicates, etc.
6—Portland cement

Organic fibers form the basis for a great many papers, fabrics and woods which in the unimpregnated state, are classed as Class O insulation.

> Class O insulation consists of cotton, silk, paper and similar organic materials when neither impregnated nor immersed in oil.—A.I.E.E. Standards.

Paper is perhaps the most widely used of insulating materials and is also one of the oldest. It is manufactured from fibers derived from sources such as grasses, plants and woods. Fiber length, the character of the paper, and insulation value to a large extent,

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Contribution of the TAPPI heat and power committee.

[1] Industrial engineering department, General Electric Company, Schenectady, N. Y.

is dependent upon the process or treatment used to liberate the fiber and upon the plant or wood from which it is taken. In an unimpregnated state, freedom from small metallic particles, the purity of the paper, which takes manufacturing processes, sizing material, etc., into consideration, has considerable bearing upon insulation value and ageing qualities.

Specifications of papers used for insulating purposes usually include the following tests: color, surface—glossy or matte, thickness, maximum variation in thickness over a specified area, strength—tensile and transverse, ageing qualities, breakdown voltage and moisture content.

Paper (called board when thick) is widely used for cable insulation, for mechanical protection to other insulation on coils, as slot armor, as separators and for layer insulation as separators in condensers, etc.

Fabrics are usually regarded as vehicles for varnishes, gums, shellacs, etc., although the fibers themselves possess insulating qualities if the natural wax and other chemical impurities are first removed from the raw fiber and the finished fabric is then scoured to remove sizing. Specifications of fabrics include the following tests: tensile strength, folding endurance, tearing strength, water absorption, varnish absorption, effect of heat, ash content, acidity, dielectric strength, electrical endurance, power factor and dielectric power loss.

Fabrics are largely employed as covering for coils on armature and field windings, for binding and for wrappings where they can be treated after applying. Untreated cotton and silk are widely used as individual strand insulation and are applied directly to the conductor in single, and multiple wrappings. Various woods are in use as wedges in rotor slots to restrain the coils against the action of centrifugal force; wood is excellent insulation material if thoroughly dried to remove sap and moisture and is then treated with oil or wax to keep out the moisture.

Properly impregnated papers, fibers and woods come under Class A insulation.

> Class A insulation consists of cotton ,silk, paper and similar organic materials when impregnated (with varnish, rubber, asphalt products, etc.) or immersed in oil, also enamel as applied to conductors.—A.I.E.E. Standards.

Papers impregnated with oils or varnishes are used for the manufacture of tubes and cylinders, for fillers and separators in many pieces of electrical apparatus. Oil filled paper has become popular as high tension insulation. Treated fabric insulation materials are found in countless industrial applications in motors, generators, transformers and switchgear. Cotton is the most common of the fabrics and is available in varnish- and rubber-impregnated tapes and cloths; linen has high tensile strength and silk fabrics when treated are used extensively for high tension work. Cellulose while not strictly a fiber is so closely related that it may be classified under organic fibers. Some of the artificial silks are produced from cellulose and many of the molded compounds found in switch covers, terminal boards, etc., employ cellulose for a base .

Inorganic fibers are not so widely distributed as the organic fibers. They can be classed as Class B insulation if they are not mixed with too much Class A material to cause disintegration at Class B temperatures.

> Class B insulation consists of inorganic materials such as mica and asbestos in built-up form combined with binding substances. If Class A material is used in small quantities in conjunction for structural purposes only, the combined material may be considered as Class B, provided the electrical and mechanical properties of the insulated winding are not impaired by the application of the temperature permitted for Class B material. (The word "impair" is here used in the sense of causing any change which could disqualify the insulating material for continuous service.)—A. I. E. E. Standards.

Asbestos is the best known inorganic fiber and is highly desirable in sheet form, as a tape or as a cover for conductors where comparatively high temperatures are encountered; mixtures with cotton for higher mechanical strength are in use as covers for conductors exposed to moderate heat. As explained above, the percentage of Class A fibers used lowers the heat resisting qualities. Motors which are heavily rated for severe service especially in a high ambient temperature often employ asbestos covered windings.

The material having the highest temperature limit according to the A.I.E.E. Standards is Class C insulation.

> Class C insulation consists of inorganic materials such as pure mica, porcelain, quartz, etc.—A.I.E.E. Standards.

Mica is a natural insulation and is widely used where good insulating properties are required at the higher temperatures. It is fabricated into plates by the use of special oils and varnish binders. If the binding material is of sufficient quality the insulating properties are not greatly affected by overheating. Mica plate is widely used for segmental insulation in commutators; other uses are for slot linings, transformer rings, tubes and plates for use in switchgear, washers for field coils, insulation barriers, etc. Mica built up on pressboard, strong rope paper and other backing materials by the use of a suitable bonding material is employed as lining for special boxes, barriers, etc. The composite mica insulation should contain a sufficient amount of mica where heat is encountered.

Ceramic materials include glass, porcelain, earthware and vitreous enamels. On account of their high insulating properties, strength, ease of forming into shapes they are employed as blocks, cleats, bases for fuses, insulators for high tension transmission wires, auxiliary shapes to conduit fittings, bushings, and in many other places where a rigid insulating material is required. Porcelain for high tension insulator work is easily formed with the required "petticoats" and when glazed offers a high resistance to creepage. Perhaps the best known use for glass as an insulator is in the lamp and vacuum tube industry although glass insulators for overhead transmission systems are employed to some extent. Vitreous enamels applied to metal tubes as insulation for resistance coils are heat resistant as well as excellent insulating material.

In the following paragraphs the remainder of the important "raw" materials are briefly described without attempting to segregate them into Classes O, A, B or C insulation.

Slate, marble and soapstone have been used for many years in slab or plate form as insulating parts of electrical apparatus. The workability, dielectric value and excellent appearance makes these materials desirable for switchboard and rectifier panels; other uses are for instrument and rheostat bases. Marble can be polished to a high degree and is suitable for use where certain architectural effects are desired; slate or panels of fabricated or compounds are in common use. Metallic veins sometimes encountered in slate panels are sometimes a sources of trouble and for this reason it is advisable to place bushings in holes through which electrical conductors pass.

Bitumens include a wide variety of compounds originating in petroleums, tars, pitches, etc., as a residue after the lighter products have been driven off by distillation. Their high melting points, flexibility and insulating properties when properly compounded render them suitable for the impregnation of armature coils, field coils, solenoids as well as cloths, tapes and papers; uses where flexibility is not of such great importance include joint box compounds.

Oils in this part of the discussion will be considered as insulating oils. They are obtained from the crude oils by distilling petroleum into its many constituents and are the fractions coming off between 170 and 200 degrees C, approximately. Mineral oils are used largely as insulators in regulators, transformers and circuit breakers.

Resins, gums, lacs and oils are the principal constituents in a host of varnishes used in the manufacture of electrical machinery.

Resins and gums are found as products solidifying out of exudations of certain trees. Some of these products are found in a fossilized condition as deposits in ancient forests and others are the products of insects; resins and gums are an example of the former while shellac is an example of an insect-deposited lac. The various oils used in the manufacture of insulating varnishes are usually vegetable oils of some kind which have been refined from oils expressed from seeds although inorganic oils (petroleum products) are employed to some extent. One classification divides oils into drying, semi-drying and non-drying oils. Varnish is a compound of some of the aforementioned products under the supervision of a chemist with certain specifications to meet. Varnish manufacturers are able to maintain a high quality of product and can meet insulation requirements with certain limitations. For example, varnishes obtained from a mixture of bitumens (asphalts) and some of the lighter hydro-carbons produce a varnish for coil impregnation; a varnish obtained from a mixture of resins of gums and linseed oil would be suitable for dipping or impregnating and baking; a varnish produced by the mixture of a lac or resin and a quick-drying spirit would be suitable for a finish for electrical apparatus; a varnish filled with a certain pigment could have better thermal qualities, etc. Synthetic resins have been developed by the interaction of phenols and formaldehydes which have considerable value as molded compounds.

Rubber and gutta percha come from the latex of certain tropical trees and are very useful as insulating materials especially where moisture is encountered. Rubber is very useful as a cover for flexible conductors and is applied to cable in several layers with layers of fabric between.

Oxide coatings have been known to possess insulating properties and have been used as insulation on field coils in some instances; aluminum has been found to have a coating of sufficient thickness for this purpose. Copper oxide rectifiers make use of such an insulation with considerable success.

Various substances which cannot be classed under "raw" insulation materials may be classified under Aids to Insulation; under molded compounds, "raw" materials or derivatives appear such as celluloid, casein, sodium silicate (water glass), Portland cements; solvents include alcohols, acetone, and spirits; cements, bonds and adhesives include bonding for paper and pressboard laminations "backed" mica products and porcelain cements, clays, and silicates, used in the manufacture of porcelain and glass; varnishes are many and varied in their application.

Testing

Raw and finished products used in the manufacture of electric insulation are inspected and tested in accordance with rigid specifications in order to determine the previously mentioned properties. The General Electric Company has a definite series of tests applicable to the material in question whether organic or inorganic (solid, liquid, compound, fabric, etc.). Many of these tests are taken directly from the recommendations of such technical societies as the American Society of Testing Materials and others have been developed by company engineers or by cooperation with the committees of technical societies.

Some of the tests are applicable to raw materials, compounds or materials ready for application, and finished insulations. A few of the physical tests are as follows: compressive, transverse and tensile strength, resistance to impact, water absorption and pore volume; viscosity, flash and fire points, specific gravity, drying time, non-volatile matter, heat endurance and flexibility.

Electrical tests include ageing qualities, insulation resistance, specific inductive capacity, energy loss, resistance to break down under high frequency or oscillatory discharge, change of insulation value with temperature, wet or dry operation, dielectric strength and power factor.

There are many factors affecting the results of tests; some of them are temperature, humidity, size and shape of the specimen, size and shape of electrodes in electrical tests, time period of application of test, and the characteristics of testing apparatus employed. In order to secure desirable results, therefore, such as can be checked by several independent investigators or at various times by the same investigator and to secure a dependable indication of the relative value of any given insulation, it is necessary that uniform test methods be used for this class of materials and that all tests be carefully executed in strict accordance therewith.

Beside the standardized tests of a more theoretical nature, the General Electric Company maintains a laboratory where many practical tests are made on strand and coil insulation; coils are immersed in water and insulation resistance readings taken; coils are tested for insulation shrinkage, i.e., receding from slot walls after prolonged service, etc.

Compounds no longer known as "raw" materials, ready for application are classified approximately as follows: insulating varnishes, finishing materials (paints and lacquers), enamels and paints for wires and core plates, mineral insulating oils, filling, sealing and treating compounds, porcelain, vitreous enamels, molded compound insulations, compounds molded in sheet, tube or rod form, mica, and sheet and tape insulations.

The applications of the semi-finished insulation to individual strands, coils, cables, plates and bars in the finished piece of electrical apparatus is a manufacturer's problem and adheres to established standards specified by national societies such as the National Electric Code, the A.I.E.E. Standards and the National Electrical Manufacturers' Association; individual technique varies and the excellence of the finished product depends largely upon the skill and integrity of the manufacturer.

Insulation Methods

Up to this point, electrical insulation has been treated from the "raw" and semi-finished product standpoint in order that a better conception could be gained of a few of the production problems encountered and of a few of the limitations of insulation as applied to industrial electrical apparatus. This section of the paper treats accepted insulation installation practice in industry and the care of apparatus after installation. By pointing out specific enemies of insulation such as acids, alkalies, moisture, dusts, and liquids, and by offering suggestions as to how the installation may be made more resistant to them or how it may be protected from them it is hoped that better insulation service will be the result. Operation in moist or damp atmospheres, in dripping water, in acid or alkali fumes, or in any combination of these, requires special precautions as to quality of insulation, protection or both; operation in dusty atmospheres also requires additional protection. Viscous liquids such as oils, paints, sugar, etc., are also enemies of insulation and are certain to cause trouble if allowed to accumulate.

Motor Insulation

Motors employed in the paper industry encounter representative moisture, acid or alkali conditions. Motors in the vicinity of the "blow-off" pits of the sulphite mill are subject to exposure to acids, alkalies or moisture; sometimes the motors are so located that fumes which are a combination of these pass over them. Chemical plants have similar problems involving moisture, alkalies and acids; motors in rayon plants are exposed to various harmful atmospheres, especially sulphuric acid fumes; motors operated out of doors are especially confronted with moisture. Where fumes or moisture cannot be avoided, some kind of enclosure is strongly recommended; also as low a voltage as practicable for the motor rating is advisable.

If the motor is of totally enclosed construction, such atmospheres need not be troublesome but when the motor is open, a few precautions should be observed. Dripping water from collected moisture on ceilings or from pumps should never be allowed to fall on the motor; a drip cover or similar protection is easily installed and it is cheap insulation insurance. The base of the motor should be raised from the surrounding floor level on cement grouting or other foundation. Paint on iron or steel parts offers some degree protection as far as corrosion is concerned. Open type low-voltage motors with cast aluminum rotors

have given satisfactory operation where the above precautions were observed.

A summary of conditions requiring special insulation may be grouped as follows:

1—Steam, excessive moisture from vapor, splashing, dripping or flooding. (Parts of dye houses, pulp and paper mills bleacheries, packing plants, etc., involve this condition.)

2—Excessive amounts of acid or alkali vapors, fumes or dusts. (Chemical and fertilizer plants, paper mills, and similar plants usually have this condition.)

3—Excessive ambient temperature; where windings (hottest spots) are subjected to temperature (ambient plus rise) above 105 deg. C. but not exceeding 150 deg. C.

4—Conducting or abrasive dusts, such as cast-iron dust, carbon, graphite, coke, etc. Even small amounts of such dusts may be extremely harmful.

5—A combination of conducting or abrasive dusts (such as carbon, coke, coal, etc.) with sulphur fumes, moisture, etc., as is often encountered in power plant boiler rooms around fans, coal-pulverizing and ash-handling equipments.

Special items may be included in this grouping since they affect insulation indirectly.

6—Excessive amounts of dust and lint such as lint in textile mills (tending to obstruct air passages causing temperature rise and approaching Condition 3.)

7—Viscous liquids such as oils, paints, varnishes, sugar. (Chemical plants, paint and varnish factories, sugar refineries, oil refineries, etc.)

The motor manufacturer is able to supply special insulations which will be "resistant" to these conditions but they cannot be considered as "proof" against all insulation troubles originating from them; they are intended, however, to give the motor an operating life approaching more nearly the performance of a normal motor under favorable conditions.

Insulation for Condition 1, as a rule, employs more wrappings and varnish treatments on the parts of the coils outside the slots than normal; usually the slot portions receive more wrappings. The ultimate object is to prevent condensed vapors or moisture from carrying impurities through minute holes or interstices and providing creepage paths to ground ultimately leading to insulation failure.

Condition 2 is met by using special varnishes impregnated cambrics and special varnish treatments in order to obtain as perfect a seal as possible against the passage of solutions laden with alkalies or acids. It is important that the wrapped coils are thoroughly impregnated with flexible varnishes which protect the fibers in the fabrics themselves from the action of acids or alkalies. As explained earlier in this paper, direct contact with liquids does not represent the best practice and as low voltages as practicable should be employed in order to reduce the necessary insulation thickness and consequent frame size. If a motor should be flooded or the insulation become wet for any reason it should be thoroughly dried out before the motor is placed in operation again. The drying temperature should not exceed 90 deg. C.

Condition 3 requires Class B insulation which is of inorganic materials and is not easily affected by excessive ambient temperatures ("observable thermometer temperatures—ambient plus rise—above 90 deg. C. but not exceeding 110 deg. C.")

Where conducting or abrasive dusts are encountered as in Condition 4 or when in combination with Condition 5, the advice of the motor manufacturer is especially advised. The manufacturer increases the insulation on coil ends, fills all pockets with compound and thoroughly impregnates and sprays the completed assembly in order to provide as much protection as possible toward the entrance of conductive dusts, without these precautions such dusts enter into the interstices forming creepage paths and short circuits. If a high market ambient temperature is encountered the severity of the problem is increased in some cases necessitating the use of Class B insulation. Complete enclosure of the motor or enclosure with fan cooling features is undoubtedly of value in reducing maintenance and keeping the interior of the motor clean.

Condition 6 affects insulation indirectly through excessive temperature rise (Condition 3.) A closed motor would not be troubled by the collection of lint on stator or rotor teeth and windings or by stoppage of air circulation but open motors are becoming popular for textile work; lint-free operation is secured by a hard, smooth, glossy surface on the windings, absence of pockets and dead spaces and a strong blast of air through the motor.

Viscous liquids encountered under Condition 7 cause insulation trouble if permitted to drop or splash directly on the open motor. Sugars, syrups, and molasses are hydro-carbons which produce alcoholic compounds; on disintegration; oils and paints are particularly harmful to insulations having petroleum by-product bases; varnishes dry upon stators and cause a sticky unsatisfactory condition. Installation where liquids cannot reach them readily or a drip cover is advocated wherever possible.

Control Insulation

Control apparatus, exposed to the unusual conditions described under motor insulation has two advantages over motor installations with regard to insulation protection e.g., the advantage of location and of total enclosure. Control can be placed with some choice as to location. The efforts directed toward insulation protection have been directed, broadly, to two methods of approach i.e., totally enclosing the mechanism in drip-proof gasketed enclosures or immersing them in oil tanks. Plating of exposed parts with cadmium, tin or other corrosion-resisting material greatly prolongs their life but is not effective at the points on contact on switches and contactors. If the factory is informed of the conditions under which the control is to operate, the best type can be recommended; special moisture-resisting types of hand- and automatic-starting compensators, magnetic starters, push-button stations and starting switches are available.

Control intended for unusual conditions can be given special factory finishes. Some specific applications of such finishes are: impregnation of coils with moisture-resisting varnish; special coat of varnish on springs; auxiliary switches and interlocks sherardized or cadmium plated with other iron and steel parts coated with black varnish; non-corrosive varnish on frames, covers and supports.

If control is mounted where a minimum of moisture and fumes can reach it, better service may be expected; moisture collection from dripping ceilings, open windows, steam or water pipes is not conducive to best insulation resistance. The operator can avoid many of these and keep control apparatus properly closed at all times; he can arrest undue corrosion and insulation leakage by periodic inspection, repainting with approved varnishes, paints or lacquers when necessary.

Switchgear Insulation

The matter of switchgear insulation in industrial applications resolves itself to the protection of the insulation and the various metal parts from injurious fumes, vapors, moisture or a combination of moisture and dusts. When the factory is informed of the conditions under which the switchgear is to operate, panels of the proper material, bushings, etc., can be supplied but on the whole, the question is one of protection of the various parts by varnishes, paints, lacquers, platings, etc. Impregnation of operating coils by special moisture-resistant varnishes is considered good manufacturing practice.

A prime requisite in the protective scheme is to install the switchboard where a minimum of moisture and fumes can reach it. Moisture tends to collect on the conductors and switchboard surfaces and promotes corrosion, short circuits and grounds. Switchboards should not, therefore, be erected near windows that remain

open or under nor near steam pipes or water pipes upon which condensation collects.

As mentioned before under control insulation, factory finishes can be supplied which are moisture- and corrosion-resisting for the circuit breakers, undervoltage devices, magnetic locks, relays, resistor cases, rheostat mechanisms and miscellaneous iron and steel parts. Such measures all add to the life of the insulation employed in protecting the numerous circuits.

From the operator's standpoint the factory finishes can be supplemented and preserved by the use of a good moisture and corrosion-resisting paint on all pipe supports, channel sills and fittings. It is good practice also to paint the outsides of transformer tanks and compensator cases; a paint which possesses insulating properties is recommended for this kind of work. Vaseline or lacquer brushed or sprayed on buses and connections are of considerable assistance in preventing corrosion of copper. Frequent inspection and treatment of the equipment is of considerable value in preserving the insulation. Care should be exercised, however, to keep preparations out of the bearings of moving parts of devices and the contact surfaces and joints of current-carrying parts.

When electrical conductors are employed in damp or corrosive atmospheres, not only the regular problem of transmission, distribution and inter-connection of apparatus are encountered but the ever-present danger of the lowering of insulation resistance through the entrance of moisture and other enemies of insulation must be guarded against. Normally, any insulated conductor is limited in maximum current-carrying capacity by the maximum temperature which the insulation will withstand without undue deterioration and by mechanical limits caused by the expansion and contraction of the cable with variations in temperature. Thus, the current is limited by the type of insulation and consequently the rate of heat dissipation from the conductor to the surrounding medium. Factors affecting the surrounding medium are climate and proximity to other heat conducting bodies as other cables, boilers, steam pipes, etc. Added to these factors are the insulation-resistance lowering influence of moisture and other extraneous substances which are constantly trying to penetrate joints, the armor and the insulation itself.

Standard types of insulation are rubber, varnished cambric, "solid" paper and oil-filled paper. This "type" designation refers in a general way to the predominating part of "body" of the insulation; many combinations of tapes, fillers, braids and metal armors are actually employed.

Rubber is entirely waterproof and very flexible but ages more quickly than other types at high-load temperatures. It is also quickly destroyed by internal or external ionization or corona and this limits the maximum safe voltage rating for rubber-insulated cables.

Varnished cambric insulation, in almost every respect, is midway between rubber and paper and combines many of their good qualities but also some of their less desirable ones. It is very flexible but not as flexible as rubber. It is reasonably moisture proof but unlike rubber, cannot be operated continuously immersed or in continuously moist surroundings without a protective lead sheath or its equivalent. Varnished cambric is much more resistant to ionization or corona than rubber.

The installation of "solid" and oil-filled paper insulation requires more care and skill than most other types. (Oil filled as differentiated from "solid" paper insulation has the voids filled by a comparatively thin oil kept under positive pressure from reservoirs). Bends are not so easily made and a minimum radius bend must not be exceeded during or after installation. The sheathing almost universally of lead and hermetically sealed, must be used to exclude all air and moisture throughout its operating life. For this reason all joints must be very carefully made.

Paper-insulated cable is popular for power transmission work on account of economy, superior dielectric qualities and higher allowable operating temperature. Where the voltage and amount of power transmitted permit, rubber cable is sometimes used in damp locations on account of its water-resisting qualities. The number of conductors per cable are governed by such factors as practical field conditions, considerations of economy, physical dimensions of cable, voltage rating, load requirements and number of phases.

No standard type of cable insulation has been established for power distribution. Paper insulation lead-sheathed finds extensive use especially at the higher voltages and heavier loads (primary distribution). Rubber with or without lead sheath is a close second and is often employed at the lower voltages and lighter loads (secondary distribution). Varnished cambric is also used for the purpose, generally lead-sheathed. There is no established practice as far as the number of conductors per cable is concerned with the voltage, power, type of system and number of phases among the governing factors as before. For secondary (low voltage) distribution probably the single-conductor cables are preferred because of the ease in making taps.

Because of its flexibility and water-resisting qualities, rubber insulation is excellent for inter-connection of apparatus where sharp bends must be made. For the higher voltages, varnished cambric or paper insulated cable is becoming quite generally used. The paper-insulated cable is desirable especially where large current carrying capacity is required.

Perhaps the transformer is as well fitted for operation in moist locations as any piece of electrical apparatus on account of its extensive use in out-of-door locations. The development of both power and distribution transformers has been both for indoor and outdoor use. Heavy tanks, with gasketed covers and with provisions for filtering and purifying the oil have left the transformer in an excellent position for industrial applications.

Materials entering into the manufacture of transformers may be classified into four groups: conducting materials, magnetic materials, structural materials and insulating materials. The conductivity and resistivity of conducting material can be measured accurately; the eddy current losses and hysterisis of magnetic materials are determined with a fair degree of accuracy; the properties of the structural materials are similar to those used for other purposes. Insulating material presents a more difficult problem with less data available: it is a non-metal compound, the desired characteristics of which are more difficult to combine and control. Both solid and liquid insulations are used in transformers—solids between strands, coils and between high and low voltage coils and liquids in conjunction with solid barriers where mechanical strength is not required.

In spite of the difficulties encountered, there are on the market some very good compounds which possess desirable qualities for transformer insulation; they can be shaped, they are rigid, yet not brittle, they have high dielectric strength and do not soften or crack under comparatively high temperatures under vacuum. These compounds are used between high- and low-voltage coils where extreme care is exercised to exclude all moisture at all times.

Measuring Air-Permeability of Paper

An attempt is being made by the Bureau of Standards to design and construct an apparatus for measuring the air permeability of paper that will be suitable for research use. A study of the existing methods pointed to the desirability of the following improvements: the development of a means of drawing conditioned air through the paper; the maintenance of a more nearly constant pressure drop across the paper; a means of preventing leakage where the paper is clamped, without altering the effective area of the specimen through which the air flows; the use of a much larger effective test area to minimize the variation caused by the inherent lack of homogeneity of paper.

The results obtained with the different commercial apparatus are expressed in various arbitrary units but it was found that if the results are corrected for systematic errors and expressed in a common unity they agree fairly well.

Section of the

COST DEPARTMENT

of the

American Paper and Pulp Association

Edited by Thomas J. Burke C. A. Director Cost Dept.

Uniform Cost Procedure *

By James A. Reilly[1]

We are assembled here at this Cost Convention primarily for the purpose of discussing the various phases that enter into our Uniform Cost Procedure.

Perhaps a briet review of the events leading up to this convention might not be out of place. It might be of interest to many members who are here for the first time and at the same time refresh the memories of the old timers who have participated in previous Cost Conventions.

Mr. Burke, in seeking subjects for his fall convention in 1930 requested the writer to state his views—which I did—on September 10, 1930, as follows:

"I honestly believe that the entire program should be devoted to the adoption of standard methods and practices with the idea of publishing a manual of Standard Practices, similar to the manual published by the Electrical Manufacturing Industry. If we are in a position, and I think we are, to do something actually constructive, such as the issuance of a manual, jointly prepared by Cost Accountants in the Paper Industry, that it would be the basis for a solid foundation for the new Cost Department. I no doubt feel that such a manual could be prepared by Mr. Burke, but the industry would look upon a book more favorably if it were the work of many, rather than the work of a single individual."

Early in November, 1930, President S. L. Willson sent out a call for our Fall convention to be held at Buffalo, New York on November 20, and 21, to consider organizing for the purpose of adopting Uniform Accounting and Cost Procedure in the Pulp and Paper Industry.

November 20, the Cost Convention was addressed by L. C. Reynolds, comptroller and assistant to the president of the American Writing Paper Company, Inc. The address was very ably presented and clearly indicated that much thought and time was given in its preparation; in fact he clearly outlined the necessary steps to be taken in preparation of the Manual.

Mr. Reynolds suggested that the plan be sub-divided as follows:

1—Balance Sheet
2—Profit and Loss Statement
3—Productive Materials
4—Direct Labor
5—Mill Overhead
6—Manufacturing Expense
7—Administration and Selling Expense
8—Fixed Assets including depreciation
9—Standard Costs and Estimates

and that a committee of ten be appointed, each representing one of the above named subjects with a general Chairman; and they to select their assistants from the General Assembly.

I am going to quote from Mr. Reynolds' address a few paragraphs that I know we must constantly keep our eyes focused on in the preparation of this Manual.

"Another thing that we should remember at the outset is that there will probably never be unanimous agreement on the necessary items of procedure and that we can never have majority conclusion as to the minor details. It seems apparent that our efforts should be confined to bringing in conclusions as regards the elements of our Accounting System and that in certain phases we must recommend alternate methods, and that we must leave the details to the individual members themselves. In other words, our objective in Uniform Cost Procedure is to arrive at an agreement such that our Total Costs and certain elements of same are all arrived at on a Uniform basis. Our objective is therefore to set up such a procedure that we are all striving for the 'same thing' but we must recognize that there is always *more than one way* to arrive at the same thing. We have within our industry individual Pulp Mills, individual Paper Mills, and mills that are a combination operating Pulp and Paper Mills jointly. Each presents different problems and different ways must be evolved to suit these different conditions so as to arrive at the same thing: Also some members have many units and some have but one. Also some have units of a variety of work and others have their units confined to one line of work. Such varying conditions, together with differences in method of organization, will also call for different ways in which to arrive at the same objective.

FIRST OBJECTIVE

"I believe that we have two major objectives in our endeavor to establish Uniform Accounting Procedure. *The first and foremost is to be sure that we are all figuring our costs on the same basis so that our resulting selling prices will be based upon similar information. This involves the establishing of a procedure which when the different members examine their own existing procedure and compare it with the Uniform procedure adopted, will enable them to know whether they are including all of the items in their costs.*

* Presented at the convention of the Cost Department of the American Paper and Pulp Association, New York, Feb. 15, 1932.
[1] Asst. Compt., American Writing Paper Co., Inc.

SECOND OBJECTIVE

"The second objective is to set up a Uniform Procedure with regard to financial statements so that future statistics collected for the Industry will be on a comparable basis and therefore will be of more use to its members. Such a procedure need not alter the existing accounting practice of any institution except such minor changes as may be necessary to accumulate information so that reports rendered to Headquarters can be made in the Standard form. In fact, none of the Uniform Accounting Procedure adopted need be necessarily incorporated in existing systems nor would it be necessary for any member to change his system or supersede it by the procedure adopted. However, a well thought out Uniform procedure may in time supplant existing accounting systems in a great many organizations but it should be a voluntary matter with these organizations.

Terminology

"It might also be well to consider the definition of Mill Cost and I believe that some organizations will not only want to use the term 'Mill Cost' but also the term 'Manufacturing Cost.' For some time past, I have been accustomed to call as Manufacturing Cost the Mill Cost plus the Indirect Manufacturing Expense. I believe that some such term as 'Manufacturing Cost' is worth adopting so as to determine the cost of the product up to the point of distribution. In other words, the Inventory value of finished product would be Manufacturing Cost."

If you have not all received a copy of this address, may I suggest that you get in touch with Mr. Burke; if you read it over carefully you will note Mr. Reynolds not only states the Objectives, but mentioned in detail the various subjects to be considered, and finally the application.

Our Buffalo cost convention was considered very successful. On November 20, the following committee of ten was appointed:

J. L. Henson, (Sub-Com. No. 1, Balance Sheet and Control Accounts) Champion Coated Paper Company, Hamilton, Ohio.

R. H. Morrill, (Sub-Com. No. 2, Profit and Loss Statement) Chemical Paper Manufacturing Company, Holyoke, Mass.

C. F. Niedermann, (Sub-Com. No. 3, Productive Materials) The Beckett Paper Company, Hamilton, Ohio.

R. B. Hersey, (Sub-Com. No. 4, Direct Labor) Hollingsworth & Vose Company, East Walpole, Mass.

Paul A. Wilks, (Sub-Com. No. 5, Mill Overhead) Strathmore Paper Company, West Springfield, Mass.

H. C. Bradford, (Sub-Com. No. 6, Indirect Manufacturing Expense) Rex Paper Company, Kalamazoo, Mich.

W. F. Bromley, (Sub-Com. No. 7, Administrative and Selling Expense) Hammermill Paper Company, Erie, Pa.

A. M. Van Douser, (Sub-Com. No. 8, Fixed Assets) Marathon Paper Mills Co., Rothschild, Wis.

Ralph B. Knott, (Sub-Com. No. 9, Standard Costs) Eastern Manufacturing Company, Bangor, Maine.

James A. Reilly, (Chairman) American Writing Paper Company, Holyoke, Mass.

The committee was exceptionally active for the first two months and some of the work turned in could easily be classified as that prepared by experts, but as time went on enthusiasm died down; possibly it might have been caused by the depression.

During the past year, the Cost Department has distributed to its members several pamphlets that might be of considerable help in their work on the Manual, for example, a pamphlet by the Metropolitan Life Insurance Company, entitled "Financial Statement in Annual Reports to Stockholders of Industrial and Mercantile Companies." This pamphlet was very interesting and presented different Balance Sheets together with Profit and Loss Statements as used by various large corporations. A study of this pamphlet undoubtedly will reveal facts that might be considered in the preparation of our Manual.

On March 6, 1931, Mr. Burke sent to all the members of the Association an abridged copy of a report showing that the Federal Trade Commission is of the opinion that Trade Associations are justified in undertaking educational work, to promote uniformity and better practices in accounting and cost procedure because:

"1—Cost accounting detects and localizes waste and inefficiencies.

2—Accurate unit costs can be computed and made available for framing price lists, and differentials, making bids and planning production programs, with reference to reducing unprofitable lines and concentrating upon those more profitable.

3—Perpetual and nearly automatic inventories are made possible.

4—Data are made available, from which the reports increasingly in demand for executives and heads of departments, also for responses to governmental inquiries, can be easily and promptly prepared."

The Cost Department also furnished its members with Bulletin "F", revised January 1931, on "Income Tax, Depreciation, Obsolescence Revenue Act 1928."

I have endeavored to give you facts relative to the origination and progress of the work in connection with the Cost Procedure. There are several pamphlets and books available to assist us in our work, in Mr. Burke's office. The Federal Trade Commission has rendered its favorable opinion on matters of this kind. The committee is composed of experienced and capable accountants and all we need now is action. Mr. Burke and myself are going after the various Chairmen, and you may be sure results will be obtained.

In conclusion let me state, that I believe the time is ripe to inaugurate our plans—

Raw Materials dropping in price.
Changes in wage schedules.
Mills operating on part time basis.
Changes in Personnel in Administrative Departments.
Reduction in selling prices.

In fact, everything is on the move, so why not get our Manual ready, to go into effect before all these changes are definitely completed.

What we are after mostly is uniformity. Let us not be confused with the idea that we old timers are pioneers in Cost Work. Some cost methods were used when manufacturing was first started, regardless of how crude or incorrect they were, they were in operation. In 1918 the Cost Association of the Industry became very active and we can truthfully say that progress has been made and in many cases with satisfactory results. Now in our journey to seek better costs, we have come to that stumbling block, lack of uniformity, so why not let us all unite in order that as time progresses the work of the Cost Department will keep in line.

I think that we all believe that this long depression has reached its bottom and business will soon be on the upgrade. Most executives are laying their plans to meet this increased business. May I suggest that a little more enthusiasm be displayed by the Chairmen of the Committees, in order that this book may be issued at a later date, not too far distant, so that we too, may have the results of our efforts tie in with the up-grade of business.

In closing might I add, that prediction was made during the '93 depression that we would live it down—we did. Prediction was made during the 1907 depression that it soon would be behind us—it is. Now I believe that this depression will soon be behind us and that prosperity will return. The definition of prosperity is success. To prosper means to thrive, to flourish. Let us get busy and participate in this forward movement to success by giving to the Association in writing the plan that we suggest to obtain Uniform Cost Accounting.

Profit Leaks*

By C. M. Baker[1]

An Arkansas settler whose roof leaked was asked why he didn't fix it. His reply was, "When it rains ah can't, and when it ain't rainin' it don't need fixin'." Three years ago a paper maker was asked why he didn't close up his white water system. He replied, "No time to monkey with the damn stuff, too busy making paper." Last year his reply to the same question was, "Can't *afford* to make any changes now." Procrastination is the thief of money as well as of time.

Another mill operator said, "We have so many changes of runs involving differences in quality and color that white water utilization is impractical." "But, you can reuse the white water during the runs," he was informed. "We are afraid it will interfere with the quality of our paper," was the reply, "and our machine men just won't use white water."

Surveys in Fifty Paper Mills

Surveys in fifty paper mills indicated a total white water leak costing $1,000,000 annually. When running full capacity it is difficult to fix these leaks because everybody is busy and personnel and time are not available to make the necessary studies and alterations. During a depression many mills just will not spend the money necessary to make the improvements although a substantial return from them may be indicated. In general, however, white water utilization requires only improvements involving labor and work of the regular personnel of the mill. It does not require a large capital outlay. Satisfactory methods have been developed and are in use in many mills for white water utilization. This matter was discussed in some detail and methods of white water utilization were outlined in the report of the Waste Committee of TAPPI, of which the writer is chairman, at the annual convention one year ago.

Consider now the application of a practical method of white water utilization to the mill mentioned above with many changes. It is a specialty mill running as many as five or six changes in color and quality daily. Lapped pulp constitutes the raw material. White water utilization should be developed as an individual unit for each machine. The stock and white water pass through the system as follows:

1—The lapped pulp is mixed with water in the beaters to a consistency of 5 to 7% at which it is beaten.

2—It is dropped from the beaters to the stock chest and diluted to about 3% consistency.

3—From the stock chest it is conveyed to the machine after diluting to about 1% consistency.

It will be observed that up to this time all of the water taken into the system is for dilution, except the small amount that may be used on screen and head box showers. It is not necessary to remove the stock from the white water for use in the beaters or for dilution. Therefore, the white water up to this point—that is from the wire tray, suction box and couch roll—may be collected and returned for dilution without the use of savealls. This will constitute a balanced system providing there is sufficient storage to equalize the demand and that large quantities of fresh water are not used in screen and headbox showers.

A Closed White Water System

After the wire passes the couch rolls it starts its return to the breast roll. Here showers of fresh water are applied to clean accumulated stock from the wire. Under the above conditions a closed white water system may be developed as follows:

1—Provide a white water tank "A" of sufficient capacity to equalize the demand for beater make-up and dilution (3,000 to 5,000 gallons).

2—Collect the more concentrated white water as from the wire tray, suction box and the couch roll and put into this tank "A" and pump from the bottom back into the system for beater make-up and dilution.

3—Provide a second tank "B" of relatively small capacity and collect into it all clean white water as from the wire showers.

4—Pump directly from tank "B" back to the wire showers and other points when relatively clean water is required.

5—Equip tank "B" with a float controlled fresh water inlet and tank "A" with a float controlled inlet from tank "B", so adjusted that it will open only when tank "A" is nearly empty. In this manner all fresh water will be taken into the shower or clean white water system.

6—Sterilization with ammonia-chlorine or chlorine alone will be necessary to control slime. Furthermore, the system including machine pits and white water tanks must be protected from dirt.

"But," the mill manager says, "our wastes will still be large because we will have to clean up between every run five or six times a day." Let us see, the capacity of the large storage tank would not exceed 5,000 gallons. Assume that it contains 5 pounds of stock per thousand gallons. This would be 25 pounds of stock wasted at every clean-up. But prior to the installation of the equipment for recirculation of the white water there was wasted 100,000 gallons per ton of product or for a 30-ton machine this would amount to 3,000,000 gallons daily or 125,000 gallons per hour, or equal to 725,000 gallons for each clean up with five changes daily. This water carries not less than one pound of stock per thousand gallons. The loss therefore, would be 725 pounds as compared with 25 pounds for the clean-up at the end of the five-hour period.

"But where is the catch in this system," you ask. "Will it produce as good a quality of paper? What difficulties will we encounter?"

Tests by Forest Products Laboratory

Tests made by the Forest Products Laboratory indicate that white water utilization does not deleteriously affect the sheet properties. It does, however, change the sheet properties so that adjustments have to be made in the

* Address delivered before Cost Department, American Paper and Pulp Association, New York City, Feb. 16, 1932.

[1] Engineer, American Paper and Pulp Association.

formula or setup for the sheet in order to compensate for the materials returned by white water utilization. To illustrate, with all fresh water only 20% of the filler used was retained in the sheet, while with white water utilization 80 or 90% is retained. Chemicals used in sizing, etc. are likewise returned and retained in the sheet, thus resulting in a substantial saving in all raw materials. In order to keep the sheet uniform, however, the formula for the sheet must be changed as the white water is returned into the system.

To successfully operate a white water system requires careful attention on the part of mill operators. The personnel must be trained and educated in the use of the new system. This is not a small problem, and frequently requires some time to adjust all difficulties in a mill. The return, however, is well worth the expenditure necessary.

Are You Finding the Leaks

Are you cost experts finding the leak in your industry? Your shrinkage is high. What is the cause of the shrinkage? How much of it is due to inefficient white water utilization? It may be necessary to make certain assumptions in order to adjust your total shrinkage. It is not necessary, however, to make any such assumptions whatsoever regarding white water losses, because these losses may be measured definitely by a white water survey as outlined in a bulletin upon the subject published by the American Paper and Pulp Association. This survey will indicate definitely the extent and sources of all losses through the mill sewers, and will lead to the development of a practical and economical method of recovery and utilization.

One of the principal difficulties that has been encountered in the past in connection with white water utilization has been the formation and accumulation of slime. This is probably the greatest one factor that has prevented mills adopting satisfactory methods of white water recovery. For several years chlorine has been used with reasonable success in many mills. Difficulties have been encountered, however, in closing up the system completely because of rapid dissipation of the chlorine, resulting in ineffective sterilization in remote parts of the system. Experience with ammonia-chlorine treatment in water purification has indicated a substantial prolongation of the sterilizing properties. Research and tests conducted by the writer during the past summer in the application of this method to the pulp and paper industry have proven rather conclusively that this method is much more effective than chlorination only. This subject is covered by special bulletin recently published by the Association entitled "Slime Control." In several mills where it was found impossible to satisfactorily control slime with chlorine only, this problem has been solved by the use of ammonia-chlorine.

Problems for the Cost Men

It behooves the cost men of the pulp and paper industry to

1—First, seek out the white water leaks.
2—Secure a white water survey to determine the extent and source of these leaks.
3—Keep before the mill executives the financial loss through these leaks.
4—Insist upon a progressive sustained program to close the leaks.

Now is the time to make improvements. During the depression there is ample time to make the necessary changes, develop the personnel and work out a satisfactory program for complete white water utilization. The mill that goes through this improvement and development during the depression will be in much better position to reap the harvest when we return to prosperity.

R. S. Kellogg Discusses Forestry

Syracuse, N. Y., March 9, 1932—"A forester is not a John the Baptist or a Messiah and forestry is neither propaganda nor politics, though some foresters have degenerated into propagandists and politicians," said R. S. Kellogg, secretary of the News Print Service Bureau, speaking today at the New York State College of Forestry.

"Forestry is the growing of timber crops and foresters are those who do so," said the speaker. "Not only that, but foresters henceforth will be more and more engaged with marketing problems; the growing of timber is easy compared with the increasing difficulties of profitable utilization. There is no impending wood famine in America. Forestry must stand on its own feet and pay its own way if it is to succeed.

"The forestry profession offers small monetary return, the work is hard and the time long, but the other rewards are great for those who intelligently choose forestry as a mode of life. There are the permanent satisfactions that come from a training in the scientific spirit, the understanding contacts with natural forces and the getting away from the ballyhoo and bunk which characterizes so many modern undertakings.

"Nearly eighty years ago, a publisher in London offered a reward of 1,000 pounds for a cheap and satisfactory substitute practically unlimited in quantity, to be used instead of cotton and linen rags to print newspapers on. The award was not made then, but a generation later the use of wood brought a permanent revolution in paper making. Opportunity still knocks for those whose training and vision fit them to listen."

Jewell & Peck Paper Corp. Formed

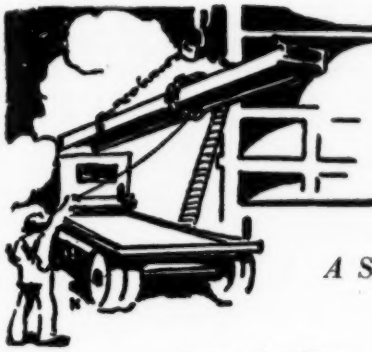
Watertown, N. Y., February 29, 1932.—A new concern has been organized here under the name of the Jewell & Peck Paper Corporation and articles of incorporation have already been filed with the Secretary of State. Corwin T. Jewell, former general manager of the St. Regis Paper Company, is head of the new concern and associated with him is Ralph C. Peck, of Brownville. Mr. Peck has also had considerable experience in the paper manufacturing field and was connected with the sales department of the St. Regis concern for a number of years. Mrs. Francis K. Jewell is also listed as one of the principal stockholders.

The company plans to engage in the buying and selling of all kinds of paper products including wrapping paper, boxes, wood products, twine, etc., besides conducting a general wholesale, jobbing and distribution business. The offices and warehouses will be operated in this city. The capitalization is given as $5,000 divided into fifty shares of common stock. The directors will serve as officers.

Paperboard Standards Booklet

At the request of its members, the Paperboard Industries Association has just issued a revised edition of the booklet of Paperboard Standards, which contains: Standard Box Board Definitions; Gauge Lists; Standard Terms, Reservations and Extra Charges; Standard Contract Form, etc.

Several thousand copies have been supplied to members of the association. A limited number are available for further distribution, and those desiring the booklet may secure it by addressing the Paperboard Industries Association, 608 South Dearborn street, Chicago, Ill., remitting on basis of a charge of 25 cents per copy.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Edgely, Pa.—The Paterson Parchment Paper Company, 33 Eighth street, Passaic, N. J., has plans nearing completion for a new addition to its mill on the State road, Edgely, near Bristol, Pa., and plans to place work under way at an early date. It will be two-story, 90 x 200 feet, reported to cost over $75,000, with equipment. The Haenichen Engineering Company, 222 West Broadway, Paterson, N. J., is engineer.

Cleveland, Ohio—The Detroit Wax Paper Company, Pleasant street, Detroit, Mich., manufacturer of processed paper stocks, has concluded arrangements for an addition to plant of the Cleveland Wax Paper Company, 13831 Triskett road, N. W., Cleveland, recently acquired, and now operated as an affiliated organization. The new extension will form a wing to present unit, and is reported to cost over $150,000, including equipment. It will provide for considerable increase in present working force of 150 men. The extension will be used for the manufacture of automobile panel boards and allied specialties. Frank A. Sarstedt and his son, G. A. Sarstedt, heretofore heads of the Cleveland company, as president and treasurer, respectively, have sold their interests to the Detroit Wax Paper Company, which is affiliated with the General Motors Corporation, Detroit. The new officers of the Cleveland company will be A. J. Trumbull, president; L. O. Turner, vice-president; W. A. Fisher, treasurer; and Donald Holm, secretary.

Chicago, Ill.—The Cromwell Paper Company, 4801 South Whipple street, has awarded a general contract to the E. W. Sproul Construction Company, 2001 Pershing road, for a new one-story addition to plant, to be located at corner of 48th and Whipple streets. It will be used primarily for storage and distributing service, and switch tracks for loading and unloading freight cars will be provided inside the unit. The structure will approximate 40,000 square feet of floor space, and is reported to cost over $75,000, with equipment. A Epstein, 2001 Pershing road, is architect and engineer.

York, Pa.—The York Card and Paper Company, York, a division of the United Wall Paper Factories, Inc., has resumed production at its mill following a curtailment of a number of weeks. The plant regularly gives employment to about 275 persons, and proposes to go on a full time working schedule at once, to be continued for an indefinite period.

Long Island City, N. Y.—The Muller Paper Goods Company, 2350 Linden street, Ridgewood, Brooklyn, N. Y., manufacturer of paper cups, baking dishes and kindred paper goods, has concluded negotiations for the purchase of the six-story building occupying site bounded by the block of Skillman and 43th avenues, 31st and 34th streets, Long Island City, heretofore known as the Orsenigo Building. It will be known in the future as the Muller Building. The structure approximates 96,000 square feet of floor space, and will be occupied by the purchasing company at an early date as a new plant; present factory will be removed to the new location and additional equipment provided for large increase in present capacity. The company recently had plans prepared for an addition to its Ridgewood plant, previously referred to in these columns, and it is understood that such project will now be abandoned. H. W. Muller is president, and E. A. Muller, secretary and treasurer.

Monroe, Mich.—The River Raisin Paper Company, Monroe, has adopted a capacity schedule at its different plant units, giving employment to a total working force of about 700 operatives in 8, 10 and 12-hour shifts, day and night basis. It is expected to hold to this basis for some weeks to come. George H. Wood is president.

Brooklyn, N. Y.—The Centaur Paper Mills Supply Company, 425 Greenpoint avenue, Brooklyn, has perfected arrangements for a lease of the building at 1160 Flushing avenue, extending to Jefferson street, owned by the American Radiator Company, and will occupy at early date for new storage and distributing plant.

Philadelphia, Pa.—Fire recently damaged the six-story plant of the Jesse Jones Paper Box Company, 1023 Vine street, with loss reported as slight. The heavy fire in a neighboring factory at 1027-33 Vine street, causing the entire destruction of that unit, occupied by the Philadelphia Toilet & Laundry Company, brought about the damage at the Jones factory.

Cleveland, Ohio—The Industrial Rayon Corporation, West Ninety-eighth street and Walford avenue, is said to be arranging for the early development of a new branch of production, covering the manufacture of cellulose wrapping materials, previously referred to in these columns. The company has plans maturing for four new additions to its plant, with main one-story sawtooth roof structure, totaling about 50,000 square feet of floor space. The expansion program is reported to cost over $350,000, with equipment. It will be placed under way at once. Christian, Schwarzenberg & Gaede Company, Union Building, Cleveland, is architect and engineer.

Malone, N. Y.—The Malone Mill Operating Committee, Inc., Malone, has been organized with a capital of 100 shares of stock, and will engage as a holding interest to operate a mill in this section, name temporarily withheld. John C. Turnbull, 111 John street, New York, is one of the incorporators.

Waynesboro, Va.—The duPont Cellophane Company, Buffalo, N. Y., has adopted an 8-hour day working schedule at its local mill for production of transparent wrapping material. A 6-hour working basis has been in effect for some time past. Business on hand is said to insure new schedule for some time to come.

Montreal, Que.—The Consolidated Paper Corpora-

tion, Montreal, is arranging to resume production at its mill at Port Alfred on or about April 18, and a large stock of wood is available at the plant. Following, it is proposed to gradually discontinue operations at the mill at Shawinigan Falls, Que., releasing close to 600 men. It is expected that the final closing at the last noted mill will take effect about May 28, consuming the larger part of the raw wood at the plant.

Ottawa, Ont.—The Gatineau Power Company, a unit of the International Hydro-Electric System, Montreal, Que., affiliated with paper mill interests, will carry out an expansion and improvement program for increased service in the Ottawa and Hull districts, including the construction of a new steel tower transmission line for a distance of about 1¼ miles from the Val Tetreau power substation. Additional equipment will be installed in the last noted unit for increased capacity, practically doubling the present rating from 40,000 to 80,000 horsepower.

New Incorporations, Etc.

New York, N. Y.—The Seneca Folding Paper Box Company, New York, has filed notice of company dissolution under state laws.

Brooklyn, N. Y.—The Zenith Paper Corporation has been incorporated with a capital of 100 shares of stock, no par value, to manufacture and deal in paper goods. Jacob Vogel and Julius Wexler, 53 Malta street, Brooklyn, are the principal incorporators. Company is represented by Edward Zorn, 33 West Forty-second street, New York, an attorney.

New York, N. Y.—The Bowater Paper Company, New York, has filed notice of reduction in company capitalization from $150,000 to $100,000.

New York, N. Y.—The Glass Paper Making Supply Company, 109 Greene street, has arranged for an increase in company capitalization from $10,000 to $30,000.

Boston Paper Trade Happenings

BOSTON, Mass., March 7, 1932—Arthur E. Ham, of Arthur E. Ham & Sons, at the annual meeting of the Oval Club at the U. S. Veterans Hospital, Bedford, Mass., was among those presented with an honorary certificate of life membership in recognition of interest in their printing department.

E. J. Kellar, of the E. J. Kellar Company, New York, a well known paper stock man, visited the Boston trade last week.

N. F. Davis, of the Davis Paper Company, expects to leave for Florida Wednesday.

Much sympathy is expressed for Paul F. Poinier, of Poinier & Carmer, in the death of his grandson, four years old.

Papercrafters Public School Division, Inc., Holyoke, Mass., has been incorporated. The capital stock consists of 900 shares, $100 each. The incorporators are John M. Reynolds, president; Wellington G. Reynolds, 22 Taylor street, South Hadley, Mass., treasurer, and N. Stuart Reynolds.

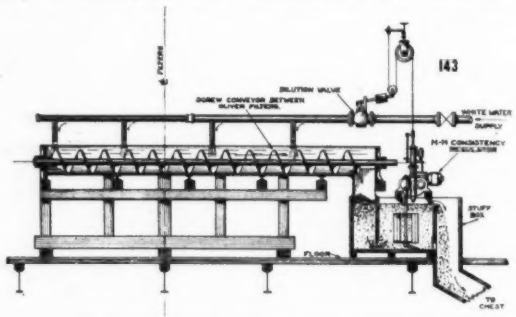
New Jones Jordan Bulletin

E. D. Jones & Sons Company, builders of high-grade machinery for paper mills, of Pittsfield, Mass., have just published a new bulletin describing the new Jones Split Adjustable Shell Jordan, designed to meet the most exacting mill requirements. Its principle of operation, whereby adjustment is obtained by sliding the shell instead of the plug, is a feature that will be welcomed by the industry. The bulletin is profusely illustrated and may be obtained upon application.

Meyers-Mesco Regulator Solves Problem

Merritt Engineering and Sales Company, Inc., of Lockport, N. Y., report another knotty problem solved in stock consistency regulation by a Meyers-Mesco Regulator. At Cumberland Mills, Maine, the S. D. Warren Company manufacture the famous line of Warren standard papers. Their problem was to obtain uniformity of soda pulp density prior to the beaters, so that the heating process and proportioning of additional materials thereto could be made consistently uniform.

Of equal importance was the accounting phase of the operation, which can be accurately carried out only if density is uniform. This installation presented an unusual problem in that a large volume of stock had to be handled, while simultaneously reducing its consistency to good pumping and beating densities.



CROSS SECTION MEYERS-MESCO REGULATOR

The accompanying illustration shows the application of the Meyers-Mesco Consistency Regulator to this problem. Two Oliver Suction Filters are placed parallel and adjacent to each other, each discharging into a common screw conveyor placed longitudinally between them. The soda pulp is propelled to the discharge end of the conveyor and falls into a stuff box baffled as shown. From the stuff box, the pulp flows by gravity to a storage chest on a lower floor. Soda pulp is pulped directly to beaters from this storage chest.

The installation was guaranteed to maintain density within 15 per cent above or below a given average density, that is, the density must not vary more than a total of 3 per cent. At all times since its installation the machine has done this to the satisfaction of its owners. The regulator accurately and reliably smooths out density variations in stock as it comes from the filters regardless of the cause of such variations. Needless to say, beater room soda stock conditions are very uniform, with all the consequent advantages that efficient regulation can give.

Swedish Pulp Market Dull

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 9, 1932—The Swedish chemical pulp market during the second half of February according to unofficial reports received here, continued dull with sales considerable under normal. Possibilities of increased demands from the British wrapping paper mills were considered good in view of the protection now being granted them in the home market. During the last week in February strikes were called in eight of the leading pulp mills, and a general conflict in the pulp and paper industry seemed not unlikely. The dispute between the mill owners and their operatives centers around the proposal of the former to cut hourly wages by 6 per cent and piece work rates by 12 per cent.

GEORGIA'S RESEARCH PULP AND PAPER PLANT

(Continued from page 13)

for maintenance and personnel; and third, by the generous assistance of the Industrial Committee of the City of Savannah and the machinery, equipment and supply manufacturers.

By its action, Georgia assumes a leading position in forestry research work and engages in a new departure and unique pioneer activity for any state government. The appointment of Dr. Herty was the first and most important step in organizing the project. This was followed by the designing of the plant by Puseyjones engineers and the selection of the machinery and equipment in co-operation. Finally there was the selection by Dr. Herty of a staff of technical experts to erect and operate the plant.

The Men in Charge

In charge of the plant, under the supervision of Dr. Herty, will be G. C. McNaughton, who for seven years was with the Forest Products Laboratory, Madison, Wis., and later with the George H. Mead Paper Company at Kingsport, Tenn., and Chillicothe, Ohio.

Assisting Mr. McNaughton will be Bruce Suttle, formerly with The Champion Fibre Company, Canton, N. C.; Atlantic Pulp and Paper Company, Port Wentworth, Ga.; Chesapeake Pulp Corporation, West Point, Va.; Bogalusa Paper Company, Bogalusa, La. and the Advance Bag and Paper Company, Hodge, La.

W. F. Allen, who will be the chemist in charge of the laboratory pulp and paper tests, has been with the Bureau of Standards, Washington; the National Research Council, and has also done research work with the Binders Board Manufacturers' Association.

J. B. Osborne, Jr., who will be connected with the laboratory, has done considerable work in oil and sugar chemistry both in this country, and in the tropics, and was formerly connected with the Pan-American Petroleum Corporation.

Layout of the Plant

The layout of the plant was of utmost importance not only to provide the latest and best type of equipment, but to parallel as closely as possible the technical and mechanical processes of commercial plants and, at the same time, keep the cost within the funds available. This was only made possible by the splendid co-operation of contributing manufacturers, the majority of whom supplied the equipment at cost or less.

After considering offers from eight cities in the State, Savannah was finally selected and a warehouse building with adjoining dock and railroad siding, on the site of the Savannah Electric and Power Company, was made available by the Industrial Committee of Savannah through the co-operation of the Power Company, who are also supplying power and light, and otherwise rendering assistance.

The Central of Georgia Railway co-operated by expediting the delivery of equipment, lending the assistance of their staff of construction engineers, and donating supplies for the foundation work.

Machinery Equipment

Acclaimed by all who have seen the plans as the most modern and complete plant of its kind, a brief mention of the machinery equipment at this time will, no doubt, be of interest.

The semi-commercial section, planned to handle up to about 2 tons of paper per day of 24 hours, comprises: Circular saw for cutting pulp wood to length, 47 inch wood chipper, oscillating chip screen, sulphite digester of 60 cubic feet capacity made of acid resisting stainless steel, digester circulating pump and acid system, three-pocket wood grinder with 42 inch diameter stone for 18 inch wood, water pressure pump and regulator for grinder, three-speed gear reduction for grinder, sliver screen and chest for either ground wood or sulphite pulp, centrifugal pump for delivering pulp to pulp screen, six-plate pulp screen, pulp thickener or decker, one sulphite and one ground wood storage chest, each 7 feet diameter, 7 feet 6 inch high, complete with agitator equipment; post type plunger pump for delivering pulp to beaters, one 300 lb. beater with bleaching and washing equipment, one 50 lb. beater, post type plunger pump for delivering beaten stock to machine chests, two machine stock chests, each 7 feet diameter, 7 feet 6 inch high, complete with agitator equipment; post type single plunger pump for delivering stock to Jordan, one motor driven Jordan engine with regulating box, six-plate machine screen.

The paper machine is of Puseyjones standard type to produce a sheet 26 inch maximum width, arranged with fourdrinier part having wire 31 inch wide x 33 feet long, press part with two sets of main presses, dry part with 9-24 inch diameter drying cylinders, calender stack containing five rolls, two-drum upright reel, slitter and single shaft winder, driving arrangement with enclosed worm gear drive unit for each section connected by means of belts on cone pulleys to overhead line shaft located parallel with the machine, machine speed 15 to 150 feet per minute through a Reeves change speed device; a combination suction and white water pump with separator tank for the flat fourdrinier boxes and a centrifugal pump for handling the white water from the fourdrinier save-all.

A number of the machinery units will be driven by direct connected motors and the others belted from countershafting, in turn driven by motors. An oil-fired steam boiler of 30 hp. capacity will supply necessary steam for digesting and drying.

The laboratory section will be equipped complete with the latest instruments for making and testing pulp and paper on a small scale, and compiling tests and records of semi-commercial operations.

Contributors to the Project

On behalf of The Georgia State Department of Forestry, Dr. Charles H. Herty and The Pusey and Jones Corporation, grateful acknowledgement is hereby made to the following manufacturers who contributed of their time, experience and good will in furthering the success of this project:

Wood Chipper Wood Grinder	Carthage Machine Company, Cathage, New York.
Grinder Roller Bearings	S. J. K. F. Industries, New York City.
Grinder Stone	Lombard & Co. Boston, Mass.
Grinder Regulator	Meyer Governor Company, Minneapolis, Minn.
Grinder Pressure Pump Acid Pump	Frederick Iron & Steel Company, Frederick, Maryland
Grinder Gear Speed Change	Philadelphia Gear Works, Philadelphia, Pa.
Pulp Screen, Beaters, Jordan, Machine Screen, Laboratory Equipment	Valley Iron Works Company, Appleton, Wisconsin.
Digester	Blaw-Knox Company, Pittsburgh, Pa.

(Continued on page 56)

Unique Locomotive Applicable to Paper Mills

By George Kirtley, general sales manager, H. K. Porter Company, Pittsburgh, Pa.

Wherever it is applicable, one of the most economical and satisfactory locomotives possible to install is the Fireless or Stored Steam. A locomotive of this type is shown in the accompanying photograph depicting one of two owned by the J. K. Mosser Leather Company, a subsidiary of Armour Leather Company, in action at Williamsport, Pa.

Several years ago this type of locomotive was developed in Europe particularly for use in localities in which there was a serious fire hazard or where cleanliness was a requirement. During the World War, when these machines could not be procured from Europe, the H. K. Porter Company, of Pittsburgh, Pa., started to continue the development of this machine in the United States and made

FIRELESS OR STORED STEAM LOCOMOTIVE

the first installation in creosoting plants and other industries where the elimination of the fire hazard was imperative.

The builder continued to improve his original product and the high economy and decided advantages of the Fireless widened the demand for the machine until now there are scores of them in service. Some are in powder mills and creosoting plants where their applicability is obvious. But equally as many are in yard shifting service.

Equipment Described

Described briefly, the Fireless locomotive consists of a large cylindrical tank which replaces the boiler on a standard fired locomotive, and which is very heavily insulated against heat loss; a pair of low pressure cylinders mounted upon the conventional type of locomotive under frame, and the usual side or rear entrance cab. Throttle, sand-box, steam or air brake, etc., are applied much the same as a standard locomotive.

The tank of the locomotive is partly filled with water and into this is charged steam—or better stated—heat in the form of steam from the plant boiler which for best operation should have at least 100 to 125 pounds pressure available, although lower pressures have been used satisfactorily.

Charging takes but a few minutes and when the tank has received the maximum pressure the locomotive goes to work, and the life of the charge varies with the amount of work performed but usually runs from two to six hours. During the entire life of the charge while the pressure is dropping from initial to final the locomotive can exert full tractive effort.

Advantages of Fireless

The economy of the Fireless is unquestionable. Its flexibility is shown by the wide variety of services to which it has been put. Since so many pulp and paper mills have modern, efficient boiler plants, it is obvious that it is infinitely better, if possible, to take advantage of that steam generating efficiency than to attempt to produce steam in the highly inefficient and all too troublesome locomotive boiler which in most cases is the chief source of maintenance cost.

Last, but not least, the so-called intangible advantages of the Fireless locomotive are often sufficient alone to recommend its use where applicable. It is clean, fireproof, can be operated inside of buildings and uses no fuel when idle.

It is ready instantly, day or night; is out of service for repairs, maintenance, etc., not over 2 per cent of its total life. It is, of course, operated by one man and when the Fireless is idle that man is released for other duties since it requires absolutely no attendance either while on charge or simply standing.

Many pulp and paper mills will, we believe, find in this article much information which will be of value to them when considering the problem of their yard switching power.

To Hold Trade Practice Conference

The waste paper dealers will hold a trade practice conference Tuesday, March 14, in New York, at the Hotel New Yorker at 10 o'clock in the morning. Commissioner Charles H. March of the Federal Trade Commission, will preside.

This industry includes dealers, packers, and brokers of mixed waste paper and the by-products of industries using paper materials. Such materials are graded and sorted into approximately twenty classifications.

The industry will discuss such trade practices as misrepresentation, commercial bribery, inducing breach of contract, defamation of competitors, and selling goods below cost with the intent of injuring a competitor.

It is expected that rules condemning a number of unfair practices will be adopted.

The industry's annual volume of business is estimated at $100,000,000, 70 per cent of which is said to be carried on by those who applied for the conference. The approximate tonnage of the industry is 10,000,000.

New Plant for Elkhart, Ind.

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., February 29, 1932—The Illinois Carton and Label Company begins this week moving its machinery and equipment from Chicago into a new plant at Elkhart, Ind. Work is being completed on the construction of a new $60,000 factory building north of the old Mengel box factory which the incoming factory has also acquired and will use for storage for raw and finished materials. The company will employ more than one hundred men in the manufacture of high class clay-coated box board containers.

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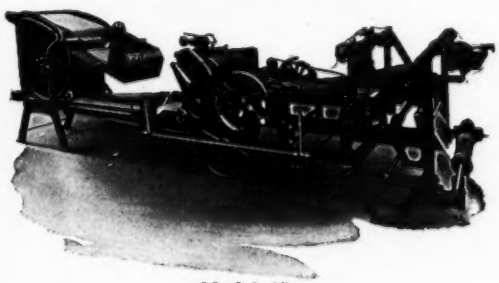

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IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

SUMMARY

WEEK ENDING MARCH 5, 1932

Cigarette paper	470 cs.
Wall paper	9 bls., 9 cs.
Paper hangings	3 bls., 2 cs.
News print	63 bls., 6348 rolls
Printing paper	111 cs.
Wrapping paper	9 rolls, 19 cs.
Packing paper	106 bls., 7 cs.
Filter paper	9 cs.
Filter masse	40 bls.
Tracing paper	3 cs.
Decalcomania paper	13 cs.
Baryta coated paper	40 crates, 1 cs.
Metal coated paper	14 cs.
Surface coated paper	5 lbs., 126 cs.
Photo paper	1 cs.
Basic paper	12 rolls
Colored paper	6 cs.
Tissue paper	34 cs.
Cover paper	2 cs.
Carbon paper	11 cs.
Writing paper	1 cs.
Envelopes	8 cs.
Stencil paper	5 cs.
Ivory board	12 rolls, 8 cs.
Paste board	40 crates
Wafer paper	8 cs.
Miscellaneous paper	10 cs.

CIGARETTE PAPER

American Tobacco Co., Ile de France, Havre, 300 cs.
Champagne Paper Corp., Ile de France, Havre, 86 cs.
Standard Products Corp., Ile de France, Havre, 65 cs.
Max Spiegel & Son, Deutschland, Hamburg, 4 cs.
S. H. Pomerance & Co., Deutschland, Hamburg, 5 cs.
Wilkinson Grey & Co., Pr. Pierce, Genoa, 10 cs.

WALL PAPER

American Express Co., Stuttgart, Bremen, 2 cs.
W. H. S. Lloyd & Co., Binnendyk, Rotterdam, 1 cs.
Guaranty Trust Co., Deutschland, Hamburg, 6 cs.
F. J. Emmerich, Deutschland, Hamburg, 9 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Farmer London, 2 bls., 1 cs.
A. C. Dodman Jr., Inc., Lancastria, Liverpool, 1 ble.
Whiting & Patterson Co., Inc., Berengaria, Southampton, 1 cs.

NEWS PRINT

Jay Madden Corp., Stuttgart, Bremen, 667 rolls
W. H. Bell, Markland, Liverpool, N. S., 4997 rolls.
Brooklyn Times, Sparreholm, Norrkoeping, 141 rolls.
Gilman Paper Co., Sparreholm, Norrkoeping, 270 rolls.
Parsons & Whittemore, Inc., Binnendyk, Rotterdam, 163 rolls.
Baldwin Paper Co., Deutschland, Hamburg, 110 rolls.
Chase National Bank, Deutschland, Hamburg, 63 bls.

PRINTING PAPER

C. Steiner, Stuttgart, Bremen, 9 cs.
E. Dietzgen & Co., Binnendyk, Rotterdam, 22 cs.
———, Deutschland, Hamburg, 22 cs.
C. Steiner, Deutschland, Hamburg, 31 cs.
International F'd'g Co., Henri Jaspar, Antwerp, 27 cs.

WRAPPING PAPER

Yardley & Co., American Farmer, London, 15 cs.
H. Reeve Angel & Co., Inc., Henri Jaspar, Antwerp, 3 cs.
F. C. Strype, Henri Jaspar, Antwerp, 1 cs.
Standard Products Corp., Henri Jaspar, Antwerp, 9 rolls.

PACKING PAPER

F. C. Teipel & Co., Stuttgart, Bremen, 6 bls.
J. P. Heffernan Paper Co., City of Alton, Antwerp, 100 bls.
F. C. Strype, Henri Jaspar, Antwerp, 7 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., American Farmer, London, 9 cs.

FILTER MASSE

Mager Bros., Inc., Stuttgart, Bremen, 40 bls.

TRACING PAPER

———, Henri Jaspar, Antwerp, 3 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Lancastria, Liverpool, 8 cs.
C. W. Sellers, Deutschland, Hamburg, 5 cs.

BARYTA COATED PAPER

Globe Shipping Co., Stuttgart, Bremen, 40 crates, 1 cs.

METAL COATED PAPER

K. Pauli Co., Deutschland, Hamburg, 14 cs.

SURFACE COATED PAPER

Globe Shipping Co., Deutschland, Hamburg, 5 cs.
International F'd'g Co., Deutschland, Hamburg, 5 bls.
Gevaret Co. of America, Henri Jaspar, Antwerp, 121 cs.

PHOTO PAPER

Weiss Forwarding Co., Deutschland, Hamburg, 1 cs.

BASIC PAPER

F. C. Strype, Binnendyk, Rotterdam, 12 rolls.

COLORED PAPER

H. Lange, Stuttgart, Bremen, 3 cs.
F. Murray Hill Co., Deutschland, Hamburg, 3 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., Lancastria, Liverpool, 2 cs.
D. F. Young, Lancastria, Liverpool, 3 cs.
W. J. Byrnes, Berengaria, Southampton, 6 cs.
———, Deutschland, Hamburg, 23 cs.

COVER PAPER

International F'd'g Co., Deutschland, Hamburg, 2 cs.

CARBON PAPER

C. L. Voorhees, Pr. Pierce, Genoa, 11 cs.

WRITING PAPER

Simfred Co., Inc., Ile de France, Havre, 1 cs.

ENVELOPES

Simfred Co., Inc., Deutschland, Hamburg, 8 cs.

STENCIL PAPER

Wedeman Godknecht & Lally, Deutschland, Hamburg, 5 cs.

IVORY BOARD

F. C. Strype, Binnendyk, Rotterdam, 12 rolls, 8 cs.

PASTE BOARD

De Grauw Aymar & Co., Examelia, Genoa, 40 crates.

WAFER PAPER

Ipex, Binnendyk, Rotterdam, 8 cs.

MISCELLANEOUS PAPER

Iwai & Co., Tai Yang, Kobe, 3 cs.
J. Romer, Tai Yang, Kobe, 4 cs.
Keller Dorian Paper Co., Ile de France, Havre, 3 cs.

RAGE, BAGGINGS, ETC.

Darmstadt Scott & Courtney, Artigas, Liverpool, 69 bls. bagging.
Banco Coml Italiana Trust Co., Examelia, Genoa, 15 bls. rags.
Banco Coml Italiana Trust Co., Examelia, Naples, 137 bls. bagging.
———, Henri Jaspar, Antwerp, 143 bls. canvas.
Castle & Overton, Inc., American Importer, Hamburg, 29 bls. rags.
E. J. Keller Co., Inc., American Banker, ———, 54 bls. rags.

HIDE GLUE

———, Stuttgart, Bremen, 400 bags.
———, Deutschland, Hamburg, 350 bags.

GLUE STOCK

M. Miller, Henri Jaspar, Antwerp, 216 bls.
———, Henri Jaspar, Antwerp, 102 bls.

OLD ROPE

Banco Coml Italiana Trust Co., Stuttgart, Bremen, 63 coils.
S. Birkenstein & Sons, American Importer, Hamburg, 85 coils.

CASEIN

D. C. Andrews & Co., Deutschland, Hamburg, 60 bags.

WOOD PULP

Pagel Horton & Co., Inc., Sparreholm, Gefle, 3500 bls. sulphite.
Castle & Overton, Inc., Binnendyk, Rotterdam, 480 bls. wood pulp.
Castle & Overton, Inc., Deutschland, Hamburg, 250 bls. wood pulp, 50 tons.
Castle & Overton, Inc., American Importer, Hamburg, 160 bls. wood pulp, 27 tons.
E. J. Keller Co., Inc., American Importer, 1344 bls. wood pulp.

WOOD FLOUR

The Burnet Co., Binnendyk, Rotterdam, 500 bls.
Corn Exchange Natl Bank & Trust Co., Binnendyk, Rotterdam, 557 bags.

WOOD PULP BOARDS

———, Deutschland, Hamburg, 18 bls.
Lagerloef Trading Co., Deutschland, Hamburg, 106 bls.

BOSTON IMPORTS

WEEK ENDING MARCH 5, 1932

T. D. Downing & Co., Artigas, Manchester, 55 bls. new cuttings.
———, Artigas, Liverpool, 59 coils old rope.
National Shawmut Bank, Artigas, Liverpool, 39 bls. rags.
1st National Bank of Boston, Artigas, Liverpool, 17 bls rags; 35 bls. flax waste.
Atkinson Haserick & Co., Pr. Pierce, Genoa, 1 cs. wrapping paper.
E. J. Keller Co., Inc., Remscheid, ———, 693 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 5, 1932

H. W. T. Mali & Co., Tai Yank, Kobe, 25 bls. rags.
J. M. Hagy Waste Works, Tai Yang, Kobe, 90 bls. rags.
H. G. Lichtenstein, Tai Yang, Kobe, 125 bls. old wipers.
Corn Exchange Natl Bank & Trust Co., Tai Yang, Kobe, 25 bls. old wipers.
Union Waste Works, Tai Yang, Kobe, 130 bls. old wipers.

(Continued on page 54)

TRIUNE
AND
MULTIPLE PLY DRYER FELTS

Serve every Felt Purpose in an efficient and satisfactory way.

ENGLISH or BAKER WOVEN

Made in three, four, five and six ply—60" to 214" wide.

FITCHBURG DUCK MILLS
FITCHBURG, MASS.

For 88 Years Makers of Fine Faced Felts For Papermakers

WOOD PULP AGENTS

PRICE & PIERCE, Ltd.,

60 EAST 42nd ST.
NEW YORK

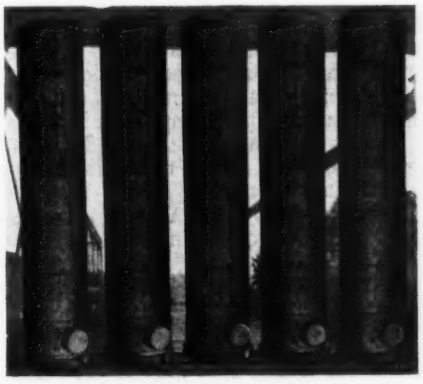
Scientific Joining Alligator Steel Belt Lacing holds the belt in a vise-like compression grip. Prevents ply separation at belt ends. The smooth flexible joint is reliable in service and has great surplus strength. It rocks on oval faces of the sectional hinge pin.

Quickly and Easily Applied with only a Hammer

Combines the efficiency of an endless belt and the convenient take-apart feature. In general use on light, medium and heavy belts of all types. Made also in "monel metal". Eleven sizes. Sold the world over.

FLEXIBLE STEEL LACING COMPANY
4689 Lexington Street Chicago, Illinois
In England at 135 Finsbury Pavement, London, E. C. 2

To avoid imitations look for the Alligator on the yellow labeled box and stamped on the lacing.



Five Chrome Iron Tanks by Downingtown

MODERN STEEL ALLOYS and the Paper Industry—

Modern steel alloys, such as chromium-iron, chrome-nickel iron, Everdur, nickel-clad steel plate, require highly specialized knowledge for their proper fabrication into tanks, digesters, boiler shells, vats, piping for the Paper Industry. . . . *Welding* is best sometimes, as is also *riveting*,—or even a combination of these under certain conditions. . . . Downingtown has the knowledge (the expert welding engineers), the facilities (a thoroughly modern plant), and the background of extensive experience to assure you absolute steel plate satisfaction.

NOTE: Are you on our list for receiving copies of the illustrated booklet of the steel plate industry, "DOWNINGTOWN DOINGS!" The booklet has a unique interest for all those who use steel plate work in industry. WRITE FOR YOUR COPY

WRITE US

DOWNINGTOWN IRON WORKS
Pioneers in Chrome *Iron Fabrication*

Imports of Paper and Paper Stock

(*Continued from page* 52)

G. W. Millar & Co., Inc., Artigas, Manchester, 14 bls. rags.

Gilman Paper Co., Sparreholm, Norrkoeping, 908 rolls news print.

———, Sparrenholm, Norrkoeping, 37 rolls news print.

National City Bank, London Exchange, London, 151 coils old rope.

———, London Exchange, London, 80 bls. rags.

———, London Exchange, London, 140 coils old rope.

E. J. Keller Co., Inc., Examelia, ———, 331 bls. rags.

E. J. Keller Co., Inc., Exchester, ———, 144 bls. rags.

E. J. Keller Co., Inc., Remscheid, ———, 52 bls. rags; 348 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING MARCH 5, 1932

———, Artigas, Liverpool, 194 bls. rags.

E. Butterworth & Co., Inc., City of Alton, Antwerp, 226 bls. bagging.

Irving Trust Co., City of Alton, Antwerp, 70 bls. bagging.

National City Bank, City of Alton, Antwerp, 36 bls. flax waste.

BALTIMORE IMPORTS

WEEK ENDING MARCH 5, 1932

New York Trust Co., Sparreholm, Tallum, 1675 bls. sulphite.

Pagel Horton & Co., Inc., Sparreholm, Gefle, 1500 bls. sulphite.

M. Gottesman & Co., Inc., Sparreholm, Gefle, 200 bls. sulphite.

Stora Kopparberg Corp., Sparreholm, Gefle, 213 rolls news print.

Price & Pierce, Ltd., Sparreholm, Stugsund, 2025 bls. mechanical pulp.

Parsons & Whittemore, Inc., Gotha, ———, 170 bls. wood pulp.

Parsons & Whittemore, Inc., City of Baltimore, ———, 980 bls. sulphite.

NEW ORLEANS IMPORTS

WEEK ENDING MARCH 5, 1932

Flintkote Co., Binnendyk, Rotterdam, 208 bls. rags.

Mente & Co., Inc., Binnendyk, Rotterdam, 150 bls. bagging.

May Buy Chester Div. Mill

[FROM OUR REGULAR CORRESPONDENT]

HUNTINGTON, Mass., March 8, 1932—The citizens of Huntington are looking forward to a boost of prosperity here if the proposed sale of the Chester Division of the American Writing Paper Company, Inc. goes through as appears likely at present. Officials of the American Company and the proposed new owners have come to an agreement but the papers have not yet been passed and may not be for 10 days.

A new company to be known as the Huntington Paper Company has been formed and George Gammie, a former Holyoke papermaker, is said to be slated for the superintendency. Other officials have not yet been announced.

The equipment in the mill included a 62 inch machine and auxiliary equipment. In former years a high grade writing paper was manufactured here. It is a wooden building erected in 1852 and opened the following year by Greenleaf & Taylor. In later years it was one of the properties of the Massasoit Paper Company of Holyoke and the late E. C. Rogers was in charge. In 1890 this was set off as a separate concern named the Chester Paper Company with a capitalization of $75,000. For some years before it was acquired by the American Writing Paper Company, Inc. it employed 75 hands and did a prosperous business.

Largest Rolls in Paper Industry

Nearly a ton of soft rubber has just been applied on each of two of the largest rolls used in the United States paper industry by The B. F. Goodrich Company at its plant in Akron, Ohio, using the exclusive patented vulcalock method of attaching soft rubber directly to metal.

These two smoothing press rolls for the Champion Fiber Company plants at Canton, N. C. are each 241 inches long and 32 inches in diameter. Each weighed approximately 11 tons before the soft rubber surface was applied. There were 1986 pounds of soft rubber put on each of the rolls made of cast iron. The rubber was vulcanized on each roll in a single operation.

One of the most interesting of the technical operations in the application of the soft rubber roll was the grinding of crowns on each. The crown of one is 110 thousands of an inch and on the other 130 thousandths of an inch, tapering gradually from the center to the outer edge of the roll.

Before putting the vulcalock process into operation, the surface of the metal core had to be thoroughly cleaned. The vulcalock process was patented November 2, 1926, after months of research in the Goodrich laboratories. Besides its application on rolls used in paper industry operation, other successful uses of the vulcalock process have been in lining tanks used in the chemical industry, linings for ball mills for the ceramic and chemical industries, gravel chutes, laundry chutes, dredge pump linings, exhaust fan linings, and covering metal for resistance against gases.

New Paper Handkerchief Machine

One of the new additions to the line of high speed paper converting machines made by the Paper Converting Machine Company, of Green Bay, Wis., is the new handkerchief machine. In it the builders have incorporated their patented full rotary principle, which is famous for producing a perfect product at all speeds. The new machine is rated as being able to produce 500 handkerchiefs per minute, quarter folded and cut, though higher production is possible.

Handkerchiefs can be made from either 3 or 4 ply stock and folding mechanism can be had to deliver them either quarter folded, interfolded, or in any special fold desired. A shear cut type of "cut off" is used in this machine. This type of "cut off" is noted for its clean square cut which adds materially to the appearance of the finished product.

At present two of these machines are in operation, one in the eastern states and the other in the mid-west. Both are giving excellent results.

Decision on Fourdrinier Wires

[FROM OUR REGULAR CORRESPONDENT]

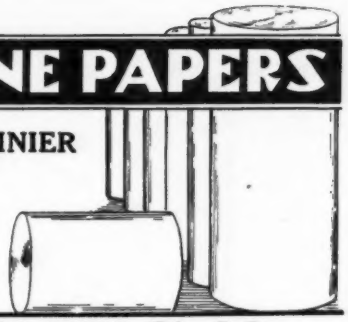
WASHINGTON, D. C., March 9, 1932—A decision has been rendered by the United States Court of Customs and Patents Appeals in connection with the importation of Fourdrinier wire.

In the case of the California Fruit Wrapping Mills, Inc., against the United States, Fourdrinier wire screens were assessed at 30 per cent as machine parts. The importer protested that they were properly dutiable at 20 per cent as stock treating parts for pulp and paper machinery. The United States Customs Court overruled the protest and their judgement is now affirmed in this decision just rendered.

FINE FELTS for FINE PAPERS

FOR CYLINDER AND FOURDRINIER MACHINES

Let us solve your FELT Problems.



THE WATERBURY FELT CO.
SKANEATELES FALLS, N.Y.

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED and MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, Index Bristol, Post Card and Label Papers

High Grade Coated Book

also

KRAFT WRAPPING AND KRAFT ENVELOPE

Bleached Spruce Sulphite Pulp, Soda and Kraft Pulp

230 Park Ave. New York — 35 East Wacker Drive Chicago

503 Market St., San Francisco, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.

1864 1932

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

SOLD BY

BULKLEY, DUNTON & COMPANY
75-77 Duane St., N. Y., and direct

Dietz Towel Interfolding Machines

also

TOILET PAPER MACHINES
For making Toilet and Paper Towel Rolls (With or without perforations)

AUTOMATIC TUBE MACHINES
For Making Wire-Stitched Toilet Tubes

Sanitary Crepe Towel Machines, Roll Tighteners, Slitting and Rewinding Machines, Drop Roll Slitting Machines, Photo Mount Beveling Machines, Rotary Card Cutting Machines, etc.
Correspondence solicited

DIETZ MACHINE WORKS
126-128 W. Fontaine Street
Cor. Waterloo St. (between Front & Second Sts.) and below Diamond St.
Phila., Penna., U. S. A.

CLINTON STARCHES

Special Grades for Beater and Top Sizing

Manufactured by

CLINTON CORN SYRUP REFINING COMPANY
CLINTON, IOWA

QUALITY **SERVICE**

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, March 9, 1932.

Conditions in the local paper market are fairly satisfactory. While demand for some of the various standard grades of paper is well maintained, other grades have experienced a slight falling off. The price situation, however, has improved, and sales forces of the leading paper organizations are more optimistic than for some time past.

The position of the news print market is practically unchanged. Production of news print paper is being maintained in sufficient volume to take care of current requirements, although there is no excessive accumulation at the mills. Contract shipments are going forward to the publishers with regularity. Prices are unaltered.

Demand for the various grades of paper board is seasonal. Box board output is sufficient to take care of current needs. Prices are steadier. The fine paper market is displaying a fairly strong undertone. Tissues are moving in good volume. The coarse paper market continues moderately active, and kraft wrapping paper quotations are holding up well.

Mechanical Pulp

While the ground wood market continues quiet, the industry is in a sound statistical position. Offerings are not excessive, due to curtailed production both in North America and abroad. Inquiries for future account are fairly numerous. Prices are holding to previously quoted levels, in most instances.

Chemical Pulp

The chemical pulp market is slightly more active. No further developments have been reported in the Swedish pulp mill strike situation. Imported bleached sulphate is easier, and is now offered at from $1.85 to $2.15, on dock, Atlantic ports. Imported bleached sulphite is quoted at from $2.00 to $2.90.

Old Rope and Bagging

Some improvement was noticed in the old rope market. Demand for both domestic and imported old manila rope is slightly better. Small mixed rope is going forward in fair volume. Prices are steady. The bagging market is irregular. While gunny is in improved request, scrap continues quiet. Roofing bagging is in seasonal demand.

Rags

The domestic rag market continues somewhat listless Paper mill interest in cotton rags is restricted. Roofing grades are moderately active and offerings are limited. Prices are practically unaltered. No radical changes were reported in the imported rag market, which is still affected by the uncertainty of foreign exchange.

Waste Paper

Local packers of mixed paper, concerned with conditions in the industry, have inaugurated a production strike and from sixty to seventy concerns have agreed not to sell mixed paper or folded news below 30 cents per 100 pounds, f.o.b. cars or vessels, New York. Efforts are being made to enlist other New York and Brooklyn packers to take part in the strike.

Twine

Trading in the local twine market was moderately active during the past week. Demand for the various grades should prove persistent until after the Easter holidays, at least. Inquiries for forward delivery are fairly numerous and the outlook for the future is promising. Prices are generally steady and unchanged.

GEORGIA'S RESEARCH PLANT

(Continued from page 49)

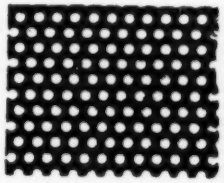
Blow Pit Tile	Winslow Company, Incorporated, Portland, Me.
Pulp Thickener	Improved Paper Machinery Corp. Nashua, N. H.
Acid Circulating System	Chemi Pulp Process Company, Watertown, New York.
Chrome Steel Valves and Fittings	Alloy Steel Products Co. Boston, Mass.
Stuff Chest Agitators	The Moore and White Company, Philadelphia, Pa.
Machine Suction Pump	Nash Engineering Company, South Norwalk, Conn.
Stock Chests	G. Woolford Wood Tank Co., Philadelphia, Pa.
Drive Flexible Couplings	Bartlett-Hayward Company, Baltimore, Maryland.
Machine Deckle Straps	U. S. Rubber Company, Passaic, N. J.
Couch Jacket and Press Felt	Albany Felt Company, Albany, New York.
Fourdrinier Wire	Cheney Bigelow Wire Works, Springfield, Mass.
Drier Felts	Fitchburg Duck Mills, Fitchburg, Mass.
Rubber Covered Press Rolls	American Wringer Company, Woonsocket, R. I.
Motors and Electrical Equipment	Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.
Belting and Hose	B. F. Goodrich Company Atlanta, Ga.
Chlorine and Chemicals	Hooker Electro-Chemical Company, Niagara Falls, N. Y.
Lime Products	Keystone Lime Works, Inc., Keystone, Ala.
Fuel Oil	Gulf Refining Company, Savannah, Ga.

Preparing for Spring Drive

POTSDAM, N. Y., March 8, 1932—A large force of lumberjacks have been steadily employed during the winter in preparing for the annual spring drive of pulpwood to the mills of the Racquette River Paper Company in this village. The cutting and peeling operations have been under way in the timber track north of here for some time and the contractors expect to start the drive as soon as the high water season arrives.

Perforated Metal Screens

For Pulp and Paper Mills



STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

".065" Round

CHARLES MUNDT & SONS

61-65 FAIRMONT AVE. JERSEY CITY, N. J.

PERMANENT COLORS

Browns Greens Reds Yellows

BROWNS
Oxides of Iron
Turkey Umbers

GREENS
Chromic Oxides
Guignet's Green

REDS
All types and shades of Oxides of Iron

YELLOWS
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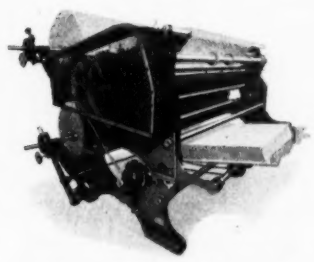
Iron Hydroxides

Asbestines and Talcs for Fillers

C. K. WILLIAMS & CO.

EASTON, PA.

H-S MACHINE CO.



New High Speed Towel Interfolder

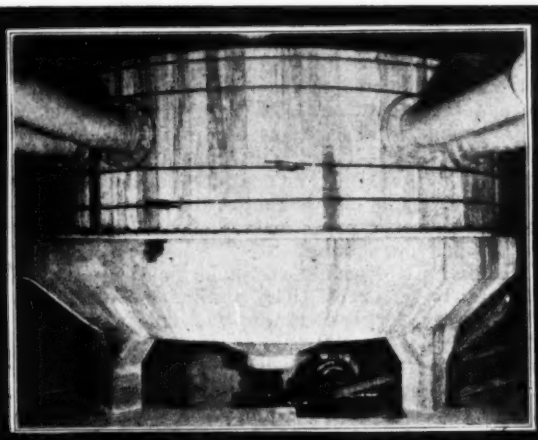
Will fold from 30 to 40 cases of standard Interfolded Towels per hour. Ball bearing throughout. Accurate and noiseless in operation.

We manufacture stock machines for every converting purpose and design special equipment to meet any paper converting problem.

—Write for further information—

Hudson-Sharp Machine Co.

GREEN BAY, WISCONSIN
Chicago Office: 374 Wrigley Bldg.
Manufacturers and Designers of Special Machinery



WOOD TANKS

Wood Staves Fitted to Concrete Conical Bottom—A Paper Mill Installation.

All tanks are accurately made and only the best material and workmanship are used in their construction.

No tanks carried in stock—all tanks made to order for your special purpose.

Our shipping facilities are unexcelled and we are prepared to fill all orders quickly.

We maintain a Special Department for the purpose of co-operating with Engineers and Chemists in determining the most suitable material and construction of tanks for their particular needs.

The Hauser-Stander Tank Co., *Cincinnati, Ohio*

CASEIN

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ANY GRADE ANY QUANTITY

THE CASEIN MFG. COMPANY OF AMERICA, Inc.

205 E. 42nd St. New York, N. Y.

Oldest and Largest Producers of Casein in America

THE CLARK-AIKEN CO.

Successors to
H. C. Clark & Son Machine Co.

PAPER MILL MACHINERY

LEE, MASS.

Revolving Paper Cutters—Rag Cutters—Cylinder Paper Machines—Washing and Beating Engines—Chilled Iron and Paper Calenders—Fan and Stuff Pumps—Engine Roll Bars and Bed Plates—
Cylinder Molds—Marshall Drives—Slitters and Rewinders—Reels—Dryers with Improved Packing Boxes—Wet Machines—Gun Metal and Rubber Rolls—Rolls Reground.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, March 9, 1932.

BLANC FIXE.—Conditions in the blanc fixe market are unchanged. Contract shipments are moving in fair volume. The pulp is quoted at from $42.50 to $45 per ton; while the powder is selling at from 3¼ cents to 3⅜ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market is only moderately active. Shipments against contract are going forward slowly. Prices are holding to schedule. Bleaching powder is quoted at from $1.75 to $2 per 100 pounds, in drums, at works.

CASEIN.—Dullness reigns in the casein market. Domestic standard ground is quoted at 7 cents and finely ground at 7½ cents per pound. Argentine standard ground is selling at 8¼ cents and finely ground at 9½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. Prices are generally unchanged. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—Paper mill demand for china clay is rather light at present. The contract movement is seasonal. Imported china clay is quoted at from $11 to $13 per ton; while domestic paper making clay is selling at from $7 to $11 per ton, at mine.

CHLORINE.—Demand for chlorine from the paper mills is fairly persistent. The contract movement is well up to average. Prices remain unchanged. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is displaying a strong undertone, and the grades of gum rosin used in the paper mills are quoted at from $3.90 to $4.05 per 280 pounds, in barrels, at works. Wood rosin is selling at $3.75 per 280 pounds, in barrels, on dock.

SALT CAKE.—Business in the salt cake market is listless. The contract movement is light. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling from $14 to $15 per ton, ship side.

SODA ASH.—Most of the business transacted in the soda ash market during the past week was along routine lines. Prices are steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1; in bags, $1.25; and in barrels, $1.38.

STARCH.—The starch market continues fairly active. Contract shipments are moving with regularity. Prices are holding to schedule. Special paper making starch is quoted at $2.54, in bags; and at $2.81 per 100 pounds, in barrels, at works.

SULPHITE OF ALUMINA.—Trading in the sulphate of alumina market is rather restricted. The contract movement, however, is well up to average. Commercial grades are quoted at $1.25 to $1.40; while iron free is selling at $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues quiet. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—No radical changes were reported in the talc market. Demand is seasonal and prices remain unchanged. Domestic talc is selling at from $16 to $18 per ton, in bulk, at mine. Imported talc is still offered at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	5.00	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	3.00	@ 5.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	3.75	@ 5.00
Coated and Enamel	6.25	@ 9.75
Litnograph	6.75	@11.25
Tissues—Per Ream—		
White No. 1	.65	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.50	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middies	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¾	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¾	@ —

(Delivered New York)

News, per ton—		
Roll, contract	53.00	@ —
Rolls, spot	53.00	@ —
Sheets	58.00	@ —
Side Runs	38.00	@42.00
Kraft—		
No. 1 Domestic	4.75	@ 6.00
No. 2 Domestic	3.25	@ 4.00
Southern	3.25	@ 4.00
Imported	3.50	@ 4.30
Boards—per ton—		
News	24.00	@27.50
Straw	34.50	@45.00
Chip	24.00	@27.50
Binders' Boards	62.00	@70.00
Standard 85 Test Liner	32.50	@37.50
Sgl. Mla. Ll. Chip	32.50	@37.50

(F. o. b. Mill)

Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	22.00	@24.00
Dry	22.00	@24.00

(F. o. b. Mill)

No. 1 Domestic	20.00	@28.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	2.00	@ 2.90
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.50	@ 1.75
Mitscherlich unbleached	1.55	@ 1.75
No. 2 strong unbleached	1.40	@ 1.50
No. 1 Kraft	1.50	@ 1.75
No. 2 Kraft	1.40	@ 1.50
Sulphate—		
Bleached	1.85	@ 2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	2.00	@ 4.00
Easy Bleaching	1.75	@ 1.90
News	1.50	@ 1.65
Mitscherlich	2.40	@ 2.55
Kraft (Domestic)	1.60	@ 2.75

(Delivered Paper Mills)

Soda Bleached	2.50	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	4.50	@ 5.00
New White, No. 2	3.50	@ 4.00
Silesias No. 1	3.50	@ 4.00
New Unbleached	6.00	@ 6.50
New Blue Prints	3.25	@ 3.50
New Soft Blacks	2.50	@ 3.00
Blue Overall	3.50	@ 4.00
Fancy	2.50	@ 3.00
Washables	1.75	@ 2.00
Mixed Khaki Cuttings	3.00	@ 3.25
Pink Corset Cuttings	3.50	@ 4.00
O. D. Khaki Cuttings	3.50	@ 3.75
Men's Corduroy	1.50	@ 2.00
New Mixed Blacks	2.00	@ 2.25

Old Rags

White, No. 1—		
Repacked	5.25	@ 5.75
Miscellaneous	4.25	@ 4.75
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.30	@ 2.50
St. Soiled, White	1.50	@ 1.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.65	@ 1.85
Black Stockings	3.25	@ 3.75
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@ 1.50
New Mixed Cuttings	1.60	@ 1.75
New Light Silesias	3.40	@ 3.50
Light Flannelettes	3.75	@ 4.00
Unbleached Cuttings	5.50	@ 6.00
New White Cuttings	4.75	@ 5.00
New Light Oxfords	4.00	@ 4.25
New Light Prints	2.00	@ 2.75

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	4.00	@ 4.25
No. 2 White Cotton	3.00	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.90	@ 2.10
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	2.00	@ 2.25
German Blue Linens	2.00	@ 2.10
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.70	@ .75
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.10	@ 1.20
Domestic	1.15	@ 1.25
Wool Tares, light	1.00	@ 1.05
Wool Tares, heavy	1.00	@ 1.10
Bright Bagging	1.00	@ 1.05
Small Mixed Rope	.90	@ 1.00
Manila Rope—		
Foreign	1.50	@ 1.60
Domestic	1.50	@ 1.75
New Burlap Cut	1.70	@ 1.80
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	2.55	@ 2.75
Hard, white, No. 2	1.90	@ 2.00
White envelope cuttings	2.05	@ 2.15
Soft, white, No. 1	1.70	@ 1.80
Flat Stock—		
Stitchless	.70	@ .80
Overissue Mag.	.70	@ .80
Solid Flat Book	.60	@ .70
Crumped No. 1	.45	@ .50
Solid Book Ledger	1.75	@ 1.85
Ledger Stock	.60	@ .70
New B. B. Chips	.20	@ .30
Manilas—		
New Env. Cut	1.75	@ 1.85
New Cuttings	1.40	@ 1.50
Extra No. 1 old	1.05	@ 1.15
Print	.45	@ .50
Bogus Wrapper	.45	@ .50
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	1.00	@ 1.10
News—		
No. 1 White News	1.60	@ 1.65
Strictly Overissue	.35	@ .45
Strictly Folded	.25	@ .30
No. 1 Mixed Paper	.15	@ .20
Common Paper		Nominal

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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¼
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.05	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06½
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03½
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	1.75	@	1.85
No. 1 Soft White	1.60	@	1.65
Ledger & Writings	.85	@	.90
Solid Books	.75	@	.80
Blanks	1.30	@	1.35
Krafts	1.15	@	1.25
New Kraft Cuts	1.30	@	1.45
Manila Env. Cuts	1.60	@	1.75
Ex. No. 1 Manila	1.25	@	1.30
Print Manila	.40	@	.45
Overissue News	.45	@	.50
Old Newspapers—			
No. 1	.40	@	.40
No. 2	.30	@	.40
Mixed Papers—			
No. 1	.30	@	—
No. 2	.25	@	.25
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07¼
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	30.00	@	32.00
Chip Board	25.00	@	27.50
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	63.00	@	65.00
Carload lots	62.00	@	67.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.05½	@	.06
New White, No. 2.	.04	@	.04½
Light Silesias	.04	@	.04½
Silesias, No. 1	.04	@	.04½
Black Silesias, soft.	.04	@	—
New Unbleached	.05½	@	.06
Washable, No. 1	.02	@	.02½
Blue Overall	.04	@	.04½
Cottons—According to grades—			
Washable, No. 2	.01½	@	.02
New Blue	.01¾	@	.02
Fancy	.02	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01¾	@	.02
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O.D.	.04½	@	.05
No. 2 Mixed	.03½	@	.04
Corduroy	.02½	@	.03
New Canvas	.06½	@	.07
New Black Mixed.	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.50
M. G.	3.50	@	4.00
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1	1.00	@	1.10
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	2.10	@	2.20
No. 2 Hard White.	1.75		2.10
No. 1 Soft White.	1.50	@	1.70
No. 2 Soft White.	1.40	@	1.50
No. 1 Mixed.	.45	@	.55
No. 2 Mixed.	.40	@	.50
Solid Ledger Stock	1.20	@	1.30
Writing Paper	.60	@	.75
No. 1 Books, heavy	.60	@	—
No. 2 Books, light			Nominal
No. 1 New Manila	1.25	@	1.50
No. 1 Old Manila	1.00	@	1.25
Print Manila	.45	@	—
Container Manila	.35	@	.40
Old Kraft	.90	@	1.00
Common Paper	.20	@	—
No. 1 Mixed Paper	.15	@	.25
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.25	@	.35
Overissue News	.40	@	.50
Old Newspaper	.30	@	.35

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¾	@	.03½
(F. o. b. Boston)			
Southern Kraft	.03¼	@	.03½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	—	@	52.50
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	45.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—			
Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.50
No. 2 Hard White	2.25	@	2.50
No. 1 Soft White	1.50	@	1.75
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.35	@	1.60
Mixed Ledgers	1.15	@	1.30
No. 1 Books, heavy	.65	@	.75
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.85	@	2.00
No. 1 Old Manila	.80	@	.90
White Blank News	1.30	@	1.40
Kraft No. 1	.70	@	.85
Manila	.80	@	.90
No. 1 Mixed Paper	.15	@	.17½
Print Manila	.35	@	.40
Overissue News	.35	@	.40
Old Newspapers	.22½	@	.27½
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.22½	@	.27½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.70	@	.80
Manila Rope—			
Foreign	1.65	@	—
Domestic	—	@	1.50
Transmission Rope	—	@	1.00
Mixed String	.25	@	.35
Jute Rope	—	@	.85
Jute Carpet Threads	.75	@	.90
Bleachery Burlap	—	@	2.25
Scrap Burlap	.75	@	.85
No. 1 Scrap Burlap	—	@	.90
Scrap Sisal	.90	@	1.10
Scrap Sisal for shredding	—	@	1.25
Wool Tares, heavy	1.00	@	—
New Burlap Cutting	1.50	@	1.75
Australian Pouches	—	@	1.50
Heavy Baling Bagging	1.50	@	1.60
Paper Mill Bagging	.75	@	.85
Bagging No. 2	—	@	.40
No. 1 Burlap	—	@	3.50

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1.	—	@	.05¼
New White No. 2.	—	@	.04
Silesias No. 1	.04½	@	.05
New Black Silesias	.02½	@	.02¾
New Unbleached	.05½	@	—
Fancy	—	@	.03¾
Washable	—	@	.03½
Cottons—According to grades—			
Blue Overalls	—	@	.05
New Black, soft	.04	@	.04¼
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.04½	@	.05
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	—	@	4.00
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	—	@	1.50
Thirds and Blues—			
Repacked	—	@	.85
Miscellaneous	1.00	@	1.20
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.60	@	.70
New No. 1 White Shirt Cuttings	5.00	@	5.50
Dutch Blues	—	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	1.10	@	1.15
Old Linsey Garments	.65	@	.70

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.60	@	—
White Wrap	5.10	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.60	@	—
Fiber	5.60	@	—
Kraft, M. F.	5.98	@	—
Kraft No. 2	5.60	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	56.50	@	57.00
Sheets	61.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	45.00	@	—
Sulphite, news grade	40.00	@	—
Sulphite, bleached	58.00	@	65.00
Sulphate	55.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.50	@	—
Soft White	2.25	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock.	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.65	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

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